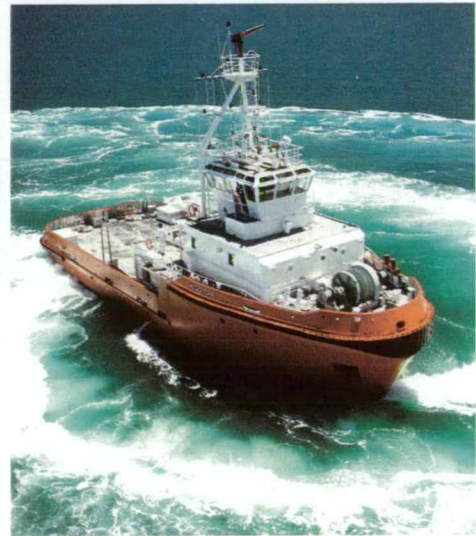


TRANSFIELD SHIPBUILDING



TRANSFIELD SHIPBUILDING (VIC)

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TRANSFIELD SHIPBUILDING NEW ZEALAND

TRANSFIELD DEFENCE SYSTEMS

TRANSFIELD HOLDINGS (MALAYSIA)



Transfield Shipbuilding is a member of the Transfield group, a leading provider of engineering, project management and construction services to the shipbuilding, power, infrastructure and process industries.

Transfield Shipbuilding is a leader in naval and commercial shipbuilding and the provision of design, engineering and logistics support services.

Through the combined capabilities of Transfield Shipbuilding (Vic) and Transfield Defence Systems in Melbourne, Transfield Shipbuilding (WA) in Perth and Transfield Shipbuilding New Zealand, Transfield has emerged as a shipbuilder of international significance, exceeding industry-best standards of productivity and quality.

Close to regional trade routes, Transfield's major facilities are well positioned and equipped to provide shipbuilding and through-life support services to clients.

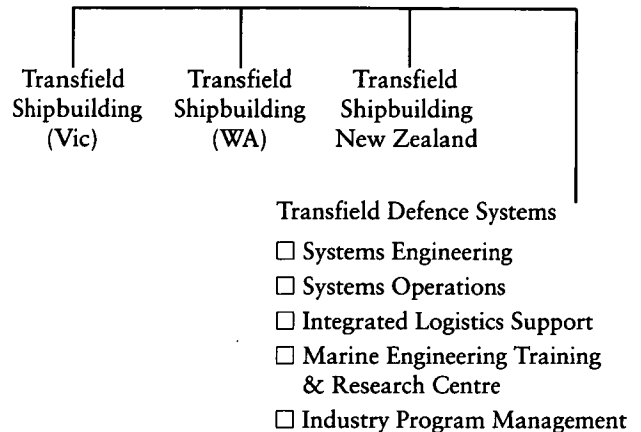
In 25 years Transfield Shipbuilding has constructed more than 200 vessels including guided missile frigates, patrol boats, trawlers, tugs, container ships, roll on/roll off ferries and survey vessels.

Employing advanced quality assurance, project management and cost/schedule control systems, Transfield Shipbuilding is routinely engaged in the provision of through-life support, maintenance, repair and refit services.

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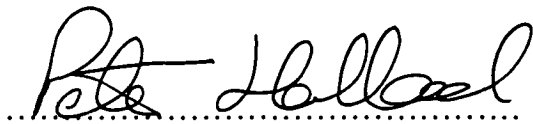
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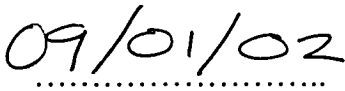


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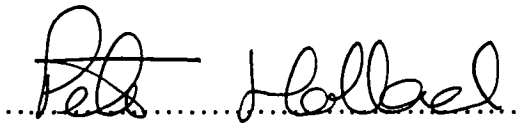
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Abstract

The Williamstown Naval Dockyard was the Australian federal government's premier naval dockyard. It had a long-standing reputation for poor productivity, inefficient work practices and industrial unrest and had been described as the Iron Lung of Australian Industry (Irving, 1993), and Australia's worst worksite (White, 1983). After several failed attempts to restructure the dockyard, the federal government demonstrated its willingness to employ commercial measures by privatising this utility. On 1 January 1988, the dockyard was transferred to the highly competitive private shipbuilding sector. As the first public utility sold by an Australian federal government it provides an opportunity to examine the restructuring of the dockyard to compete within an international market.

It has been argued since the economic crises of the 1970s that competitive advantage will increasingly be derived from an organisation's human resources, in particular how they are organised and managed (Piore & Sabel, 1984; Mathews, 1989; Wood, 1989). The micro-economic reform of the Australian labour market since the 1980s has been an important contextual factor in providing the opportunity for the development of innovative work patterns and practices. In line with these emerging themes of work organisation, this thesis examines the development of new patterns of work as a way of enhancing resource utilisation and performance through the framework of the flexible firm or core-periphery model (Atkinson, 1984). This organisational framework was developed as a response to increasingly dynamic and volatile market conditions. The development of the model infers an increasingly planned rather than reactive approach to the development of the organisation's human resources to enhance the organisation's capabilities and therefore competitiveness.

The broad theme of this thesis is the analysis of the organisation of work. First, the analysis of work organisation involves investigation of contextual factors. Second, the extent to which the flexible firm model has been replicated. Third, this thesis aims to extend the theoretical advancement of work organisation theory. Employing a qualitative methodology, the case study used the QSR NUD*IST software package to analyse interview transcripts and documents and provide categories of subject matter for analysis. Careful attention was given to the contextual and historical background in keeping with the contextual approach to this investigation.

The findings indicate that an integrative approach to work patterns and practices combined with a high level of management commitment through investment in training and development, are central factors in increased human resource utilisation. This holds a number of implications for organisations operating in dynamic environments with regard to the organisation of work.

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Glossary of Terms

ABS	Australian Bureau of Statistics
ABPDP	Australian Best Practice Development Programme
ACAC	Australian Conciliation and Arbitration Court
ACTU	Australia Council of Trade Unions
AIRC	Australian Industrial Relations Court
AMECON/AMEC	Australian Marine Engineering Consolidated Limited
AMU-FMIE	Automotive, Food, Metals and Engineering Union
AMWU	Amalgamated Metal Workers Union
ANZIP	Australian- New Zealand Industry Participation Program
BHP	Broken Hill Pty Ltd
CEPU	Communication, Electrical, Electronic, Energy, Information, Postal, Plumbing & Allied Services Union of Australia – Electrical division
C/SCS	Cost/Schedule Control System
ETU	Electrical Trade Union
FIA	Federated Ironworkers' Association
FSPU	Federated Storeman and Packers Union
JCC	Joint Consultative Committee
LMT	Lockheed Martin Tenix
METRC	Marine Education Training Research Centre
PMS	Project Management System
QPIP	Quality Productivity Improvement Programme

RAN	Royal Australian Navy
RNZN	Royal New Zealand Navy
SEP	Skill Enhancement Programme
SBU	Single Bargaining Unit
TAFE	Technical and Further Education
TDS	Transfield Defence Systems post 1997
	Tenix Defence Systems
TQM	Total Quality Management
VTHC	Victorian Trades Hall Council

CHAPTER 1.

RATIONALE FOR THE STUDY AND THESIS OUTLINE

1.1 Chapter Objectives

The objectives of this chapter are to provide a rationale for this research, an introduction to the topic of new patterns of work and the case study organisation. This is followed by an outline of the organisation and structure of this thesis.

1.2 Rationale for this Study

Since the mid-1970s a series of events have combined to set in train long-term economic instability in Advanced Western Industrial Economies (Piore & Sabel, 1984). The subsequent economic uncertainty and volatility, coupled with increased competitiveness, have led many organisations to actively seek more efficient and effective ways of utilising their resources (Sengenberger, 1992). The 'internationalisation' of the marketplace has further increased competitive pressure as the flow of capital investment, new technology and production processes to newly-industrialising economies allows them to emerge rapidly as significant competitors to Advanced Western Market Economies, organisations and markets (Liemt, 1992; Felstead & Jewson, 1999; Lui & Chiu, 1999).

In the context of these new economic conditions, enterprise performance is increasingly being associated with an organisation's ability to respond in a flexible manner to increasing competition, uncertainty and opportunities, through

more effective and efficient use of resources, in particular human resources (Atkinson, 1984; Piore & Sabel, 1984; Barkin, 1987; Mathews, 1989; Bamber, Boreham & Harley, 1992; Sanchez, 1993; Das & Elango, 1995; Emmott & Hutchinson, 1998; Robinson, 1999). As Boynton and Victor (1991) note:

A change of historical proportions is occurring in today's competitive environment, one that calls for an equally historic response in organisational structure and competitive advantage (p.53).

Whilst the debate on the reorganisation of work patterns and organisational structures has been wide and varied (Amin, 1994), several key themes have emerged which focus on increasing organisational competitiveness and responsiveness through developing integrated internal and external patterns of work organisation (Atkinson, 1984; OECD, 1987; Boyer, 1988; Bamber, 1990, 1992; Pfeffer, 1994; Das & Elango, 1995; Emmott & Hutchinson, 1998; Sparrow & Marchington, 1998). In order to analyse these emerging patterns of work organisation, the flexible firm, or core-periphery model, developed by Atkinson (1984), is used as a framework for analysis. The emerging research increasingly points to a holistic and integrative approach to the development and implementation of new patterns of work for enhancing enterprise efficiency through more effective human resource utilisation.

Despite the wide and varied discussion on this subject, to date little research has been undertaken on the development of new work patterns at the level of the enterprise. This thesis takes an exploratory approach to the topic of work organisation to improve understanding of the development and influence of new work patterns and practices on enterprise efficiency and effectiveness within domestic and international markets.

1.3 Outline of the Case Study

The focal organisation of this thesis is the Williamstown Naval Dockyard in Victoria, Australia. A preliminary overview is provided here to familiarise the reader with the history of the dockyard and the changing environment.

The Williamstown Dockyard facility was established in 1838 by the Victorian government. A patent slipway was established in 1858 and a graving (dry) dock in 1873. This made Williamstown the largest dockyard facility in the Southern Hemisphere. The first naval brigade in Australia was established and based at the dockyard and for this reason it is considered the home of the Royal Australian Navy. During World War I, the dockyard was commissioned by the federal government for naval production and subsequently purchased from the Victorian state government by the federal government in 1918. In 1923 the dockyard came under the management of the Melbourne Harbour Trust until 1941 when the Department of the Navy took control of the facility and renamed it HMA Naval Dockyard - Williamstown. After the war the dockyard was retained as the Navy's premier shipbuilding facility. A combination of factors including volatile industrial relations and archaic work patterns and practices led to major industrial unrest and exceptionally poor productivity at the facility. Various descriptions as the 'iron lung' and Australia's worst worksite, the dockyard was put out for tender by the Hawke federal labour government in 1987.

On January 1 1988, the dockyard facility was sold to the Australian Marine Engineering Corporation (AMEC). This was the first public utility to be transferred to the private sector in Australia. The AMEC consortium was subsequently acquired by the Transfield group (now Tenix) and the dockyard was renamed the Australian Marine Engineering Corporation (shortened to AMECON).

It was the Transfield group's objective to make AMECON a world competitive marine engineering facility. To achieve this dockyard management set out to reconstruct the organisation of work to achieve world best practice and ensure a successful bid for the then imminent federal government ANZAC frigate contract. This contract was the biggest engineering contract ever commissioned in Australia. AMECON won the 18 year contract in 1988 to produce the 10 ANZAC frigates for the Australian and New Zealand Navies, and signed an agreement to produce the ships at a benchmark of world best practice standards.

1.4 The Scope of the Case Study

The scope of this thesis is to examine the organisation of work at the dockyard since 1988. In undertaking this study, a broad array of factors require exploration and examination, including the historical, social and political forces and players through this period of change and the impact of these new patterns of work on the organisation over an extended period.

1.5 Organisation of the thesis

This first chapter outlines the impetus for and rationale of this study. It notes the interest in new and flexible patterns of work and identifies the major theoretical construct which will provide a framework for analysis. The focus of analysis is also identified through the assessment of the outcomes of these patterns of work at the level of the enterprise. The chapter also outlines the organisation of the thesis.

Chapter 2 builds a framework for analysis and constitutes the literature review. The concepts of work in Advanced Western Market Economies are explored in

the context of the rise in interest in flexible work patterns and associated work patterns and practices as techniques for enhancing organisational resource utilisation and subsequently enterprise effectiveness.

Chapter 3 identifies the characteristics of the Australian environment, specifically the economic framework, the catalyst for the adoption of new work patterns and micro-economic reforms to labour market regulation which have facilitated the development of flexible patterns of work. Chapter 4 introduces the fieldwork with an historical study of the international and domestic shipbuilding industries. This overview provides a contextual framework for the analysis. Chapter 5 introduces the case study - The Williamstown Naval Dockyard in Victoria - providing an analysis of the development of work patterns and practices of the case-study organisation.

Chapter 6 introduces the research design, methodology and protocol for this research. It also defines the objectives and structure adopted for the case-study research. Chapter 7 assesses the development of new/flexible work patterns and practices at the dockyard through the use of the computer software package – NUD*IST. Chapter 8 draws together the implications for the utilisation of organisational resources and their effect on performance. Reflecting on the research question and propositions, implications and conclusions are drawn from the development of these work patterns and practices at the level of the enterprise with reference to organisational efficiency and performance.

CHAPTER 2.

THE ORGANISATION OF WORK: A REVIEW OF THE LITERATURE

2.1 Chapter Objectives

The objectives of this chapter are to firstly, review the literature on work organisation and provide a contextual analysis for the development of 'modern' patterns of work organisation. Secondly, examine a range of theories in the field of new and emerging (flexible) patterns of work in Advanced Western Market Economies. Thirdly, examine the development of international standards of competitiveness, as a way of measuring enterprise effectiveness through more efficient utilisation of resources.

The chapter concludes by arguing that relatively little research has been undertaken into the factors that affect the emergence and inter-relationship of these new patterns of work and their outcomes at the level of the enterprise.

2.2 The Development of 'Modern' Patterns of Work Organisation - An Historical Perspective

Before initiating a detailed analysis of flexible patterns of work, an overview of the development of 'modern' patterns of work organisation is undertaken to provide a contextual understanding to the evolution and development of the organisation of work. This historical framework is developed within the context

of the major regimes of capital accumulation. This approach also provides the background of how and why the focus has shifted to new forms of organising work as a way of developing more efficient and effective enterprises.

The concept of work as a distinct aspect of human culture can be identified as long ago as 8000 BC (Argyle, 1989), while what have come to be characterised as modern patterns of work organisation have their origins within the past three centuries. Since the defining period of the industrial revolution (1760 - 1820), several major paradigms or regimes of capital accumulation have defined the modes of production and thus the organisation of work (Aglietta, 1976; Lipietz, 1987; Boyer, 1988). As Hirst and Zetlin (1991) identify:

There are four major regimes of accumulation in the history of capitalism since the eighteenth century: extensive accumulation; intensive accumulation without mass consumption (Taylorist); intensive accumulation with mass consumption (Fordist); and an emergent post-Fordist accumulation regime whose contours have yet to be fully determined. (pp.18-19).

Despite criticism regarding the defining points of these paradigms (Gough, 1991; Rannie & Kraithman, 1991; Burrows., Gilbert, & Pollert et al, 1992; Pollert, 1992) these regimes provide a useful framework for understanding and interpreting economic changes and the major paradigms of work organisation which emerged within these regimes of accumulation.

2.2.1 Pre-Industrial Modes of Accumulation - Proto-industrialisation

Mode of Production. Immediately prior to the period defined as the industrial revolution, the dominant forms of production could be divided between cultivators and craftsmen (Ashton, 1948). The primary focus for both modes of

production was the local or regional market. For craftsmen, the production process centred on the early merchant capitalist 'putting-out' and sub-contracting system (Braverman, 1974; Mathews, 1989). The pace of manufacture and working practices were determined within these single units. As such, the criteria for production was to sustain current economic requirements, not the maximisation of production (Braverman, 1974). This described the dominant mode of production during this period (Freidman, 1961).

The Organisation of Work. The dominant paradigm in terms of working practices in a manufacturing context was the traditional craftsman (Thompson, 1968; McKensie, 1973). In terms of manufactured goods, the working patterns and practices were vested in the innate knowledge of the craftsman. As Mathews (1989) notes:

The pinnacle of this system was the proud and highly skilled master craftsman, who owned his tools, hired his assistants, bought his own materials and sold his product direct to the market. Technologies and production processes were relatively stable, and were known in minute detail by the independent artisan, through his apprenticeship and membership of a guild (p.11).

Whilst several industries in Britain and other major colonial powers had substantial production sites, these large labour forces, such as those at the naval dockyards, remained based on traditional craft production forms of work organisation (Mathias, 1969).

2.2.2 The First Regime of Capital Accumulation-Extensive Accumulation

Mode of Production. With the industrial revolution came economic expansion on a scale never before seen. The traditional 'putting-out' system underpinned by the craft-based mode of production came under pressure to maintain pace with increasing demand. Primarily because traditional patterns of work organisation were not flexible enough to adapt to the needs of the emerging market economy, pressure grew to develop more efficient and effective modes of production (Berg, 1985; Thompson & McHugh, 1995). It was Adam Smith (1776), who identified that the restructuring of work patterns would be a central factor in increasing organisational efficiency, flexibility and, as a consequence, production. The key features included increased dexterity achieved by one person doing a narrow range of tasks and the application of simple machinery.

Through this process of work (re)organisation, the monopoly of skilled workers over production was gradually eroded, allowing for the dual effect of reducing labour costs and increasing productivity (Babbage, 1832). This deskilling of the work set in train the opportunity to firstly, shift the focus of the economics of production away from the single unit to the demands of the market and discipline workers to this new demand cycle (Pollard, 1965; Nichols, 1980; Thompson & McHugh, 1995). Secondly, it facilitated the use of the new (centralised) power sources (Mathews, 1989).

The Organisation of Work. The deconstructing of work processes and the development of simple machinery continued to reform work patterns and practices (Hobsbawn, 1968; Mathias, 1969). This facilitated the shift from cottage industries to factories in major urban areas, close to markets, sources of power and cheap unskilled and semi-skilled labour (Thompson, 1968; Mathias, 1969; Berg, 1985; Grint, 1991). Significantly, during this period of rapid industrialisation the major changes in work occurred in the organisation of patterns and practices of work rather than technology (Hobsbawn, 1968).

The second phase of extensive accumulation (1860 - 1900) was a period of consolidation (Merkle, 1980), with factories developing in both size and complexity and becoming the dominant focus of production (Hobsbawn, 1968; Grint, 1991). The increased complexity of the machines emerging during this period resulted in an almost direct correlation with the reduction in the human skills required (Thompson, 1983). As Berg (1983), points out:

..... the factory, is increasingly viewed in the light of the changes which it wrought in labour discipline and control rather than in that of its strict association with technological advances (p. 78).

In other words, production increases were achieved largely at the expense of traditional patterns of work organisation rather than in advancements in technology. Also of significance during this period was the increased separation between conception and execution of the production process (Hobsbawn, 1968; Piore & Sabel, 1984; Berg, 1985, 1988).

2.2.3 Intensive Accumulation without Mass Consumption

Mode of Production. The growth in new industries and industrial production and the emergence of national and international markets towards the end of the eighteenth century corresponded with the scientific-technical revolution, which provided advances in many industries (Hobsbawn, 1968; Freidman, 1977). It also sustained the growth of the factory system of production and its eventual dominance as the central mode of production during this period (Braverman, 1974; Rose, 1988; Hirschhorn, 1996). This contributed to increased complexity of organisations and the production process. However, in terms of the efficiency, effectiveness and organisational performance, the organisation of work was still based upon arbitrary decision-making (Drury, 1922, Merkle, 1980). From this period (and perspective) emerged F.W. Taylor and his concept

of Scientific Management in his seminal books, *Shop Management* (1903) and *The Principles of Scientific Management* (1911).

The Organisation of Work. The techniques of scientific management focused on the elimination of 'rule of thumb' approaches to work organisation and increasing productivity and efficiency by scientific methodology. As Merkle (1980) notes:

..... the core of Taylorism was clearly an explicit call for reconciliation between capital and labour, on the neutral ground of science and rationality..... Science would replace the old tyranny and resistance in industrial society (p. 15).

The increase in productivity which Taylor described (and demonstrated) during this period of rapid industrialisation ensured that these developments in work organisation would attract attention (Hoxie, 1918). Taylor focused on identifying the optimal relationship between production method, time taken, the tools used and the fatigue generated by the task (Rose, 1988). Whilst job reconstruction was not a new concept in itself, what was significant was the rigorous deconstruction and rebuilding of jobs (eliminating all superfluous actions), 'scientifically - in the one best way' (Friedman, 1961; Nyland, 1987; Thompson & McHugh, 1995). Despite criticism and resistance (Hoxie, 1918; Drury, 1922; Rose, 1988), scientific management permeated a wide variety of industries in the first two decades of the 20th Century (Chandler, 1977). The significance of scientific management in developing new patterns and practices of work organisation is illustrated by Braverman (1974) who states:

Modern management came into being on the basis of these principles. It arose as a theoretical construct and as systematic practice, moreover, in the very period during which the

transformation of labor from processes based on skill to processes based upon science was attaining its most rapid tempo..... It was to ensure that as craft declined, the worker would sink to the level of general and undifferentiated labor power, adaptable to a large range of simple tasks (pp. 120-121).

In the context of working patterns and practices, the development of scientific management varied across industries (Hoxie, 1918). However, the underlying theme of 'science' as the neutral arbitrator of work organisation provided the framework for it to become the dominant paradigm of work organisation. The overall effect of scientific management on work organisation was the separation of conception and execution and the 'systemisation' of work through the reduction of jobs into narrowly defined, repetitive tasks under strict conditions of decision-making and time (Thompson, 1983; Rose, 1988).

2.2.4 Intensive Accumulation with Mass Consumption - Fordism

Mode of Production. In appraising the development and prospects of the scientific management system, Taylor concluded it would require a revolution for it to become accepted (Rose, 1988). This revolution was to come with the combining of the principles of scientific management and the process of mass production. Whilst Taylor provided the framework, it was the American industrialist Henry Ford who realised the true potential of combining these work patterns and processes (Littler & Salaman, 1982).

The combination of scientific management and mass production allowed for standardisation, continuity and simplification of the production process and by implication work patterns and practices. The success of this mode of production and associated patterns of work (through the reduction of labour and production costs), gave competitors the option of adopting these patterns of work, or surrendering market share, thus allowing Fordism (as it became known) to

emerge as the dominant mode of production and work organisation through eliminating alternative patterns of work (Thompson, 1983; Lipietz, 1987). As Harvey (1989) points out:

..... what ultimately separates Fordism from Taylorism, was the explicit recognition that mass production meant mass consumption, a new system of the reproduction of labour power, a new politics of labour control and management ... (pp. 125-126).

The implementation of the Bretton Woods Agreement¹ in 1944 provided the economic policies for stability in international trade, suppressing the excesses of the business cycle through Keynesian monetary policies (Geiger, 1993; Overbeek, 1993; Rima, 1993). This became the catalyst in facilitating the global development of Fordist modes of production and patterns of work organisation (Lipietz, 1987). As Piore and Sable (1984) comment:

The first point is the common embrace of mass production. Sooner or later the elite in each country saw the commercial and military potential of a mass production economy as indispensable to national survival. Each country therefore forsook a distinctive national form of mechanisation..... The second is that product specific use of resources pays off only when market stability is ensured it then seemed that depression, autarky, war, and reconstruction had finally taught these leading industrial nations how to use the corporation, the wage system, the state and even the fixed-exchange rate system to create an open world economy of separate yet increasingly similar affluent societies (p.163).

¹ At Bretton Woods, New Hampshire, in 1944 a group of British and United States economists laid the foundations for a post war open trading system which would encourage expansion of international commerce. To maintain this liberal economic structure the World Bank and International Monetary Fund were created and supported by the General Agreement on Tariffs and Trade (GATT).

Thus post-war economic regulation was very much an international issue. As Harvey (1989:136) notes: “The long postwar boom was crucially dependent upon massive expansion of world trade and international investment flows”. Through the Bretton Woods Agreement, the system was underpinned by US fiscal policy and international Keynesian systems of economic regulation.

The Organisation of Work. In the context of work organisation, the key feature which distinguished Fordism from scientific management was the control (pace and intensity) of production. The determinant of this was the technology rather than the ‘scientific manager’. As Kelly notes: “the degree of the division of labour was taken much further than under Taylorism” (1982:29). Fordism also had the effect of reversing the dominant relationship between labour and technology (Gorz, 1976; Edwards, 1979). As Littler and Salaman (1982), note:

The model of production worked out by Ford to serve the mass market pre-supposed the major principles of Taylorism, but went further in the transfer of traditional skills to specialist machines (p. 75).

Thus Fordism provided a more intensive form of Taylorist work organisation for an international market - what Lipietz (1987) described as - ‘Global Fordism’. Through the post war period of economic consolidation and expansion Fordism became the dominant economic framework, under these conditions. However, the framework was to be tested in the mid-1970s as the ‘long-boom’ of economic expansion came to an end.

Fordism in ‘Crisis’. As several writers highlight (Piore & Sabel, 1984; Boyer, 1988, 1990; Thurow, 1996), there were inherent weaknesses in the economic and social structures of the Keynesian-Fordist mode of capital accumulation, in particular, the development of social policies in the areas of minimum wage

levels and social security (Harvey, 1989). Whilst negating hardship and exploitation, these processes had the effect of reducing the availability of low-cost labour while concurrently increasing fixed costs to industry, therefore reducing competitiveness. Piore and Sabel (1984) note that these policies increased the vulnerability of industry to international competition unshackled by regulation. Although this was not a problem under the dominant stable conditions of international Keynesian economic management, as Piore and Sabel (1984) comment “Everything that made for stability in times of plenty increased instability in times of want” (p. 176).

The first economic ‘shock’ to the system was the abandonment by the United States of the fixed exchange rate mechanism in 1972 (because of the deteriorating economic position of the US), which had underpinned the development of a post-war international economy (Overbeek, 1993; Rima, 1993). The effect of this was to re-introduce unpredictability into trading relations. This had not been a feature of the open-trading system of the post-war economic era, and was a central factor in ensuring instability (Pressman, 1993; Piore & Sabel, 1984).

The Oil Shocks which followed in the mid-1970s, whilst increasing costs in the short-term, were in themselves not significant enough to damage growth, as most countries were able to absorb the ‘one-off’ inflationary shock (Geiger, 1993). The problem lay in the uncertainty that followed. The effect of these economic shocks on the inflexible global economy was to send it into long-term stagnation and instability, and resulted in the demise of the Keynesian-Fordist regime of accumulation (Lipietz, 1987; Williams et al, 1987; Harvey, 1989). The economic instability dampened demand, which, combined with increasing competition particularly from newly industrialised countries such as Japan and South Korea, made it difficult to lift economies of scale (Mathews, 1989; Harvey, 1989). As Piore and Sabel (1984) comment: “This was exactly the kind

of uncertainty that mass producers - with long-term investment in high-fixed cost, specialised assets - found most difficult to manage” (p. 176).

These various crises became the catalyst for the demise of the Keynesian model of capital accumulation. Many researchers ascribed this to the manifestation of the limits of Fordism (Mathews, 1989; Wood, 1989; Boyer, 1988). As Blyton and Morris (1991) comment:

The crisis of production has been associated with several changes.....
These changes have led to particular writers in the Regulation school to argue that a new regime of accumulation has been established, termed flexible accumulation (Lipietz, 1987), while some commentators have termed this post-Fordism..... (p.5)

The response of governments and industry to this new economic environment took a neo-classical economic approach (Pollert, 1990, 1992; Treu, 1992) with the dismantling of the pre-conditions of the Fordist mode of production and work organisation. This was replaced by a move towards a post-Fordist paradigm of market deregulation (including the labour market) to cope with increasing economic instability and intensifying competition (Piore & Sable, 1984; Harvey, 1989; Hirst & Zetlin, 1991; Mathews, 1989).

2.3 The Emerging Post-Fordist Accumulation Regime

There is little disagreement that the economic ‘crises’ or shocks of the 1970s marked a major disjunction in the Keynesian regime of capital accumulation, underpinned by Fordist work organisation principles (Agilietta, 1976; Clarke 1988; Mathews, 1989; Warhurst & Thompson, 1998). These crises dramatically affected the economic and industrial landscape of advanced industrial

economies (ACIRRT, 1999). This juncture has generated substantial debate as to the nature, extent and depth of the 'crises', and what regime will replace or develop from the Fordist system. There are those who argue that the regime of intensive accumulation with mass consumption (Fordism) and its associated patterns of work are outmoded and unsustainable (Piore & Sable, 1984; Mathews, 1989; Harvey, 1989; Gallie et al, 1998) and we are at the boundary of a new industrial divide between the outmoded, intensive accumulation regime underscored by mass production, consumption and markets, and a regime with boundaries that have yet to be fully determined – the emergent Post-Fordist regime of accumulation. It is argued that this new or emerging regime is characterised by distinct patterns of inter-firm relationships and is dependent on new patterns of work organisation (Mathews, 1989; Wood, 1989; Hirst & Zetlin, 1991), and a greater concern human resource management and the relationship between management and employees (Wood & Albanese, 1995; Gallie et al, 1998).

The converse analysis acknowledges the 'crises' in the intensive accumulative regime and proposes that these crises were caused by over-accumulation, which can be overcome by economic regulation as the capitalist mode of accumulation restructures and readjusts and continues to operate (Aglietta, 1976; Clarke, 1988). Within this context, mass production and its associated (Fordist) patterns of work can be incrementally adjusted to maintain and adapt to this new economic or 'Neo-Fordist' environment (Williams et al, 1987; Bramble, 1988; Blackburn & Rosen, 1995). Whilst, these work practices might be considered alienating in the 21st century, As research by ACIRRT (1999:162), notes. " The workers needed to fill these positions could be drawn from the ranks of the long-term unemployed", thus allowing for the maintenance of a supply of labour.

Mode of Production. A central proposition underlying the arguments of those who contend that the Fordist regime of accumulation has collapsed (Piore & Sabel, 1984; Mathews, 1989; Sorge & Streeck, 1988) is what Womack., Jones and Roos (1991), describe as: "The logical limits of mass production" (p. 38). The first of these limits is the concept of the continually expanding market, creating with it stable economic growth (Clarke, 1988). The efficiency of production achieved through continuing economies of scale and vertical integration, enabled production to accelerate ahead of demand (over-accumulation). This over-accumulation has been further accentuated by what Piore and Sabel (1984) describe as the lack of universality of complementary products and markets to sustain demand and thus economies of scale.

The combination of market saturation, volatility and increased competition from the newly industrialising nations has, it is argued, effected the long-term viability of this mode of production (Piore & Sabel, 1984). Investing in mass production industries with high fixed costs, product-specific dedicated machinery which provide standardised goods, and low penetration complementary products and markets no longer appears a secure and reliable investment (Harvey, 1989; Mathews, 1989). The need for investors to optimise their capital investment whilst minimising risk, allows more 'flexible' or market-sensitive organisations to provide investors with alternative modes of accumulation. Producing batch-run production on multi-purpose machinery responding to market demands, allows these smaller production units to compete more effectively with the mass producers on economies of scope (Piore & Sabel, 1984; Clarke, 1988; Mathews, 1989).

A different interpretation of the effects of the economic changes through the 1970s to that predicting the demise of the Fordist regime of accumulation and its associated techniques is provided by a variety of sources (Dohse., Jurgens & Malash, 1985; Smith, 1989; Fieldes & Bramble, 1992). Williams et al (1987)

have developed the most comprehensive critique. They acknowledge that traditional markets for mass-produced goods are indeed mature. However, far from being the downfall of this mode of production and accumulation, the maturity of the markets can, in fact, enhance sales volume. To illustrate this point Williams et al (1987: 424) point to the market for home entertainment electrical goods in Britain which more than doubled in size through the 1980s.

The combination of replacing and re-packaging mature goods and the traditional replacement market for high penetration products ensures an increasing and relatively stable market demand. Indeed, the increased predictability inherent in these mature markets can allow a more efficient use of capital, as production, storage, purchase and manufacture can be more closely co-ordinated (Williams et al, 1987). This (gradual) fragmentation of mass markets provides opportunities as well as threats to the mass-production process. Indeed, the automobile industry, the birthplace of Fordism, is a prime example of the opportunities in a market moving towards differentiation. The range of models of automobiles has actually increased since the early 1970s (Womack et al, 1991). As Wood (1989) notes, this variety is mainly a differentiation within the context of a particular model. In fact Womack et al (1987) point to the fact that the type of vehicle produced has actually reduced over this period to four – small, medium, large and light commercial.

This restructuring of production can allow for the traditional methods of production to be maintained, whilst allowing markets trends to affect demand. Models can be produced in batch runs which can be extended or modified, repackaged and up-dated in line with current market trends and forecasts. All these variations take place not only in the same manufacturing unit, but indeed on the same production lines, with only minimal variations and adjustments to the organisation of work (Williams et al, 1987). This alternative perspective enhances the prospects of mass producers through exploitation of these

differentiated markets. Thus mass producers are able to adjust and compete on economies of scope as well as scale (Sorge & Streeck, 1988). Indeed, Smith (1989) suggests that market differentiation has caused little change in the production process as organisations move from mass to batch production.

Williams et al (1987) are also critical of the assumption of Post-Fordist advocates that new and/or complementary products and markets for mass produced goods are not 'sufficiently universal'. They describe this as bizarre: "VCR products of large scale Japanese assembly factories are sold in mass markets around the world" (Williams et al, 1987:426). Not only are many of these complementary products mass produced, they can increase economies of scale by using the same production units, channels of distribution and retail networks. Indeed, as Aglietta (1976) and Clarke (1988) both point out, this is a crisis of regulation and as such will be redressed by regulatory change and incremental adjustment. Williams et al (1987) argue that the move to 'Neo-Fordist' production patterns are an indication of such adjustments and conclude:

In any process of market fragmentation there will be winners and losers: enterprises or national industries which lose will be marginalised and possibly forced out of business. But that process does not threaten the system of large scale production, any more than the fact of bankruptcy threatens capitalism (p. 427).

This argument is supported by Debrah and Smith (2001), who contend that economic crisis is due to excess production and the imperfection of the market. Indeed the Asian economic crises of the late 1990s was mainly due to the region's excessive reliance on export demand and volatile capital markets (Montagnon, 1999). Strict fiscal regulation and the intervention of the World

Bank facilitated a rapid halt to this 'melt down' of the Asian tiger economies, without a fundamental review of modes of production (Kelly & Olds, 1999).

The Organisation of Work. In attempting to adapt to the new environment, patterns of work have become central to the debate (Piore & Sabel, 1984; Mathews, 1989; Lee, 1996), not merely as a short-term tactical manoeuvre, but increasingly as a strategic move on the part of organisations to adapt to the new economic conditions of the market place (Treu, 1992; Warhurst & Thompson, 1998). The implications for the organisation of work within this context and the 'Fordist/Neo-Fordist - Post-Fordist' debate are identified by Mathews (1989) who notes:

The major responses of firms to the manifestation of crises in the system, have taken the form either of intensification of strategy that seemed to work before [Fordism], or of a modification of Fordism towards innovation and specialisation.... neo-Fordism.... Indications are starting to emerge of a willingness, on the part of forward thinking firms, to depart decisively from the assumptions of Fordism - post-Fordism (p.31).

In other words, under these various modes of production described above, work patterns and practices have emerged with specific traits and pre-conditions (Wood, 1989; Blyton & Morris, 1991). As Pyke (1998), points out the organisation of work will increasingly be determined by organisational requirements regarding labour, quality, technology and economies of scope or scale.

The major patterns of work which have come to exemplify the emergence of (post-Fordist) alternative organisation of production can be gathered under the umbrella term of 'flexibility' (Atkinson, 1984; Piore & Sabel, 1984; Mathews,

1989; Gallie et al, 1998; Danford, 1998; Felstead & Jewson, 1999). As Pollert (1991) points out:

.... flexibility is part of the option provided by a 'New Industrial Divide' to transform both production and markets from a system based on mass production Finally, and relatedly, flexibility lies at the heart of an all-embracing shift from Fordism to Post-Fordism.
(p.2)

The initial difficulty in defining the term 'flexibility' is due to the use of the term to encompass a wide range of new work patterns and practices which makes clarity of definition difficult (Meulders & Wilkes, 1987; Hakim, 1990; Blyton & Morris, 1991; Legge, 1995; Gallie et al, 1998; Bryson, 1999). Generally, however, in the context of the organisation of work, research indicates that firstly, flexibility describes workers with polyvalent skills supported by multi-functional machinery and innovative technology, accommodating ceaseless change in the production process. Often associated with small scale operations, these patterns of work organisation has been described as *flexible specialization* (Piore & Sabel, 1984; Kern & Schumann, 1984, 1987; Harvey, 1989; Smith, 1989; Amin, 1991; Rubery & Wilkinson, 1994; Stewart & Lucio, 1998). Associated with small to medium size enterprises, the focus is on economies of scope rather than scale. This is reflected in the nature of production with the average 'half life' of all products reducing over the period 1970 - 1989 from 7 years to 18 months. In addition 75 per cent of all machine parts are now made in batches of 50 or less (Harvey, 1989).

Secondly, flexibility is seen as an ability to manipulate or adjust the internal and external labour market in line with the supply and demand of the market (Hakim, 1987, 1990; Syrett & Lammiman, 1994; Bryson, 1999). This

redefining of work organisation (including the flexible allocation of work) allows the organisation to adjust to the competitive market demands. The departure from the rigid hierarchy of labour organisation and markets has influenced the structure of organisations of larger organisations as they seek to adapt to the volatility of the market. This has seen the emergence of organisational structures such as Atkinson's (1984) *flexible firm* and what Piore and Sabel (1984) identify as the flexible specialization model, which seek to realign the organisation structure to incorporate both the internal and external labour markets (Bryson, 1999), to increase flexibility and allows management to maintain discretion and control over the process (Gallie et al, 1998).

In contrast to the Post-Fordist model with its emphasis on 'flexibility', the transitional model (from Fordism to Neo-Fordism) is defined by incremental attempts at increasing autonomy and decision-making in line with an increasingly educated workforce, with higher expectations from their work (Blauner, 1964; Braverman, 1974; Littler & Salamon 1982; Dent, 1998) in more volatile market conditions (Harvey, 1989; Mathews, 1989; Procter et al, 1994). As Smith (1989:210) comments, "Industrial job recomposition and enrichment seem to be only an adaption of the labour process in mass production". Coriot (1980) illustrates this point by identifying the practical and superficial differentiation in his analysis of restructured assembly lines. Neo-Fordism retains the principles of Fordism – routine, standardised simple tasks but in a group context (Deery et al, 2001). The more obvious disadvantages of rigidity, over-fragmentation and isolation have been minimised, but the continual effectiveness of the Fordist process of production and organisation of work is not put in question. Coriot's research in the manufacturing industry is also supported by the research of Lipietz (1987) and Mathews (1989). Research on white-collar work organisation identifies similar trait with workforce involvement in job design highly restricted with management controlled

flexibility resembling conventional assembly line patterns of work (Danford, 1998; Baldry, Bain & Taylor, 1998).

Within this debate on the new or emerging mode of regulation and work organisation, the arguments over which mode of regulation is appropriate has generated two ideal types with distinct and differentiated features and characteristics which are illustrated in Table 2.1.

Table 2.1 The Key Features of the First and Second Industrial Divides

<div> <div>Type</div> <div>Variable</div> </div>	Fordism/Neo-Fordism	Flexible Specialisation /Post-Fordism
Market	Stable	Uncertain
Product Variability	Standard	Differentiated
Production Regime	Mass Production	Small Batch
Skills Trends	Deskilling – Taylorism	Up-skilling – Conception and Execution Re-united

Source Piore and Sabel, 1984.

Further research by Swyngedouw (1986) has extended this analysis by examining differentiation of labour patterns and usage under the conditions of Fordist and Post-Fordist production regimes (See Table 2.2). In particular he notes the focus on the recombination of tasks and increased autonomy, responsibility for decision-making required of the employee.

Table 2.2 The Contrast in Work Organisation between Fordism and Flexible Accumulation modes of Production

Characteristics of Fordist production	Characteristics of Post-Fordist production
single task performance by workers - focus on economies of scale	multiple tasks - focus on economies of scope
payment per rate (based on design criteria)	personal payment (detailed job bonus system)
high degree of job specialisation	elimination of job demarcation
no or little on-the-job training	long on-the-job training
vertical labour organisation	more horizontal labour organisation
no learning experience	on-the-job learning
emphasis on diminishing responsibility (disciplining of labour force)	emphasis on worker's responsibility
no job security and poor conditions for temporary workers	high employment security for core workers (life-time employment)

Source: Swyngedouw 1986

The clear differentiation of the organisation of work under these two paradigms provides the opportunity for research which can focus on exploring the development of these distinct work patterns and practices as a way of assessing the extent and development of these two approaches at the level of the organisation.

2.4 Empirical Research into the New Paradigms of Work Organisation

In order to evaluate these new and emerging patterns of work, Grint (1991) argues that it is at the level of the organisation where change is taking place and therefore where changes should be assessed. Independent studies undertaken to assess the development of emerging themes in work patterns - Rubery, Tarling and Wilkinson (1987) in the UK, and Kelley (1989) in the USA - identified similar trends.

Kelley's research reflected a broad spectrum of ideal-type work patterns as well as including analysis and comparative research of a representative cross-section of 21 US industries (Kelley & Brooks, 1988). In terms of a framework for the organisation of work, Kelley (1989) used the following parameters:

The alternatives were characterised broadly as representative of a) scientific management, b) a technocratic – participative, or c) a worker-centred approach (p.236).

Kelley's results indicate a relatively uniform distribution between organisational types across industries. Kelley concludes from this research that a variety of dynamics influence an organisation (including competition, market forces and management style). Kelley's findings identified that neither the Taylorist (Neo-Fordist) nor worker-centred (Post-Fordist) approach to work organisation dominated any industry sector or organisational type or size. In other words, the theoretical constructs do not fit the evidence particularly well. However, Kelley did identify a positive correlation between size and ability to adapt to changing patterns of work. This tended to support the flexible specialisation thesis ('Third Italy' model discussed below) of continual 'splitting-up' of work units and/or 'putting-out' work to maintain maximum flexibility in work practices. As Kelley (1989) concludes:

..... even in the most technically flexible production operations, there is only a small chance that the distribution of control will be organised in a manner consistent with the Flexible Specialisation thesis of Piore and Sabel (1984).... (However), we find no evidence that production in large volume or relatively inflexible technical requirements is related to a strict Taylorist division of labour (p.245).

UK-based research undertaken on work patterns and organisational structures by Rubery et al (1987) used a variety of criteria to assess the development of flexible work patterns including:

..... (organisations) were significantly effected by the economic crises and were evolving production, marketing, organisational and employment policies to accommodate the changed circumstances and to take advantage of what were perceived as new opportunities (p.132).

From their research Rubery et al (1987) identified increased pressure across industries on production and cost minimisation as the most significant catalysts in developing more flexible working patterns. Despite the general trend towards more flexible patterns of work, Rubery et al (1987) found evidence of de-skilling and work intensification, particularly in association with the implementation of new technology. The implications in terms of the smooth or obvious transition from one form of work arrangement to another were difficult to identify (Rubery et al, 1987).

Further research by Ackroyd and Procter (1998) of work organisation in the 200 largest manufacturing organisations in the UK found that a combination of technology, job design, training and payment systems defined work patterns

and practices. Their research found work practices ranged from heavy dependency on 'core' unskilled workers and outsourcing of production to production organised into semi-autonomous work groups that control the labour process. Table 2.1 summaries the main findings.

Table 2.3 A Summary of the Findings of Ackroyd and Procter

- Production is organised through the arrangement of machines and workers as cells capable of producing 'families' of components or products.
- Advanced manufacturing technology is little used, except as an addition to existing configurations of equipment.
- Employed labour contributes to flexibility as teams of semi-skilled workers performing a range of specific tasks and given on-the-job training.
- Employees do not enjoy privileged status or high employment security, but compete with sub-contracted labour and alternative suppliers.
- Production operations are considered as dispensable separate 'segments', about which calculations of cost are regularly made.
- Management takes the form of intensified indirect control based on allocation of costs.

Source Ackroyd and Procter, 1998.

These results lead Ackroyd and Procter to suggest that changes to the organisation of work have been ad hoc and pragmatic with little strategic approach. Ackroyd and Procter concur with Edward's (1995) argument that within this re-regulation of labour there is no simple linear model of change. It was not a question of Fordism being transformed into post-Fordism. This has lead Ackroyd and Procter to argue that:

We should be sceptical about the universal applicability of current ideas concerning new patterns of work organisation and the management of human resources (1998:166).

These results have also been reflected in research by Baldry, Bain and Taylor (1998) into office work in the UK and Stewart and Lucio's (1998) comparative analysis of the organisation of production and employee autonomy at General Motors Spain and General Motors Britain. In the US the work of Osterman (1994), Huselid (1995) and Macduffie (1995) have identified that the introduction of high performance work organisation strategies which focus on the integration and development of the workforce's knowledge, skills and organisational structures is linked to increased productivity and competitiveness. Similar research in Australia by Rimmer et al (1996), identified the implementation of such changes were uneven at best.

What emerged from this empirical analysis of organisations and patterns of work supports the theoretical proposals of Harvey (1989), Williams et al (1987) and Edwards (1995) that no ideal or dominant paradigm has emerged from the crises of Fordism. Theoretical archetypes provide two distinct forms of work organisation which are developing in parallel and are juxtaposed (Grint, 1991). The empirical research suggests that a hybrid of the two 'ideal' models (Neo-Fordism and Post-Fordism) is more likely, and the features will be contingent on a multiplicity of factors, including markets, competition, size and skill requirements (Williams et al, 1987; Rubery et al, 1987; Boyer, 1988; Kelley, 1989; Blyton & Morris, 1991; Edwards, 1995; Ackroyd & Procter, 1998).

In attempting to analyse these new 'hybrid' patterns of work, underscored by flexibility in markets, employment relationships and organisational structures, the debate has increasingly focused on the evidence of emerging hybrid organisational models (Atkinson, 1984; Wood, 1989; Pollert, 1988, 1991;

Legge, 1995; Thompson & McHugh, 1995). In particular, the focus has turned to the development of organisational designs which have successfully developed integrative work arrangements (incorporating both highly skilled and routine work and which vary their mix of internal and external labour market inputs) within competitive and uncertain market conditions (Sabel, 1982; Atkinson, 1984; NEDO, 1986; Murray, 1987; Amin, 1991; Bamber et al, 1992; Ackroyd & Procter, 1998). The following sections examine two models which have gained prominence in the debate on the development of new patterns of work - flexible specialisation and the flexible firm.

2.4.1 The Flexible Specialisation Model

Evidence of world competitive organisations undertaking new approaches to the organisation of resources has been identified in a variety of regions including Baden-Wurttemberg in Germany and Silicon Valley in the USA (Sable, 1982). However, it is the northern Italian region of Romagna and Bologna that has generated the most interest amongst researchers (Brusco, 1982; Sabel, 1982; Piore & Sabel, 1984; Amin, 1989). This region supports a diverse range of industries including engineering, textiles, clothing and food processing, which base their production on 'flexible specialisation' (Murray, 1987). This is described by Piore and Sabel (1984) as:

.... a strategy of permanent innovation: accommodating to ceaseless change, rather than an effort to control it. This strategy is based on flexible multi-use equipment; skilled workers; and the creation, through politics, of an industrial community that restricts the form of competition to those favouring innovation. For these reasons, the spread of flexible specialisation amounts to a revival of craft forms of production that were emarginated at the first industrial divide (p.17).

These regions act as integrated and self-contained economic systems (Amin, 1991). The impetus for the emergence of this model also known as the Emilian or 'Third Italy' archetype has been the growing demand for more varied and customised goods since the 1960s (Brusco, 1982). In Murray's (1987) analysis of Sabel's ground-breaking study of this region, he notes that the key elements in the labour process are minimal skill differences within organisations and across skill boundaries as well as between conception and execution. In the context of the organisation of production, a small core organisation is maintained by continually 'splitting' the organisation when it reaches a critical mass. At this point, a satellite organisation may be set-up under the control of the central core unit (Deery et al, 2001). This modern 'putting-out' system allows the core organisations to reduce fixed cost investments of production, whilst maximising labour market flexibility. The focus of (routine or repetitive) production is displaced to the sub-contractor, who must contend with market demands and fluctuations (Murray, 1987; Legge, 1995).

Exemplar Case One - The Service Industry

The major exponent of this form of production is Benetton, the international fashion organisation. Benetton's workforce of 11,500 is composed of 1,500 direct or core employees (or 13% of the total workforce). As Murray (1985) points out: "The rest are employed by sub-contractors in factories of 30 – 50 workers each" (p.30). A key aspect in the work patterns and practices at Benetton is the integration of jobs, decision-making, conception and execution between the core organisation and the (peripheral) sub-contractors (Murray, 1985). Understandably, the clothing/fashion industry is a volatile and uncertain market within which to operate. Through the innovative use of information technology, Benetton is in direct contact with its sales points. Sales information is thus immediately sent back to head office for analysis.

Garments are sent to the outlets in a variety of colours. The sales information allows Benetton to identify which styles and colours are selling and thus place orders for these items with sub-contractors (Murray, 1985). This permits production runs to be varied, modified and altered, based on market trends and demands (Sabel, 1982, 1994; Murray, 1985). Benetton is also able to pass on market variations and volatility as well as associated costs to the sub-contractor such as holding the reserve stock, raw materials, employment requirements and means of production (Amin, 1991).

Exemplar Case Two - Industrial Manufacturing

The Morni motorcycle plant situated in Bologna employs approximately 100 'core' employees. Except for the camshaft and the engine mounting, all the component manufacture is outsourced to sub-contractors (Brusco, 1982). Other world competitive manufacturing organisations in this region developing their own forms of Flexible Specialisation include the Fiat Motor Company which has introduced flexible robotic systems, decentralised workgroups and has outsourced assembly, suspension and electronic systems production (Murray, 1987). The electronics giant Olivetti has increased the use of flexible technology in the production process, because of the decreasing life-cycle of electronic products. Both have been major proponents of the 'putting-out' system on a regional, national and international basis (Murray, 1985). Murray (1987) illustrates this formal 'putting-out' system of interconnecting firms in Figure 2.1. In addition to the competitiveness these enterprises have achieved in terms of scope, they have also developed a highly integrated group of co-operatives or associations, providing administrative services. These services co-ordinate purchasing of materials, which provides economies of scale (Brusco, 1982). This integrative network places these small firms at the core of capitalist development (Amin, 1991).

2.4.2 A Critique of Flexible Specialisation

Despite the interest in this model of integrative regional work organisation, several critiques suggest that this is a difficult model to sustain and replicate (Sable, 1982; Amin, 1991; Tomaney, 1994). As Coriot (1980) notes:

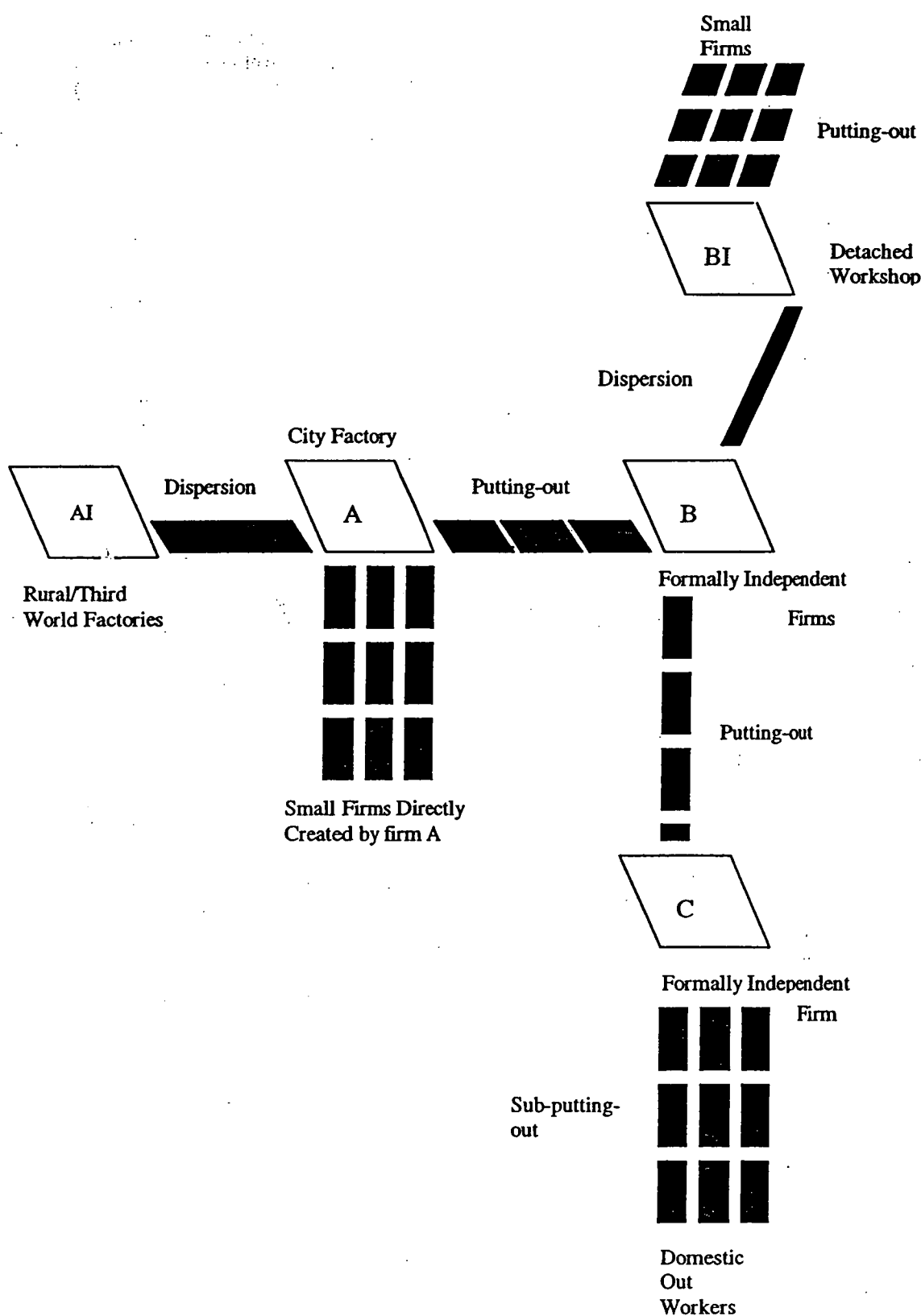
Where output is increasing everything depends on the relative importance of scale of specific products and the economies of scope. Once the former are larger and greater than the second it will be more efficient to produce in two specific plants with longer runs of the joint products formerly made with a flexible technology. In practice - and it is an empirical argument with which one can oppose Piore and Sabel - firms in sectors with increasing demand really do adopt strategies that involve a search for scale economies and the cost reductions that scale economies allow (p.150).

This point is reinforced by Pollert (1991) who states:

The niche company may innovate, but only in the short-term; the large retailer and large producer can quickly capture that product and exploit its entrenched advantage in the market (pp. 18-19).

Tailby (1999) also suggests that those supporting the flexible specialisation model underestimate the importance of scale economies. These points are substantiated by evidence indicating that large organisations have fared well in sectors (and regions) where flexible specialisation is predominant - textiles, clothing and engineering - as they continue to restructure (downsize and outsource their labour force) and invest in new technology (Murray, 1987; Tolomelli, 1988; Rey, 1989; Amin, 1991).

Figure 2.1 Schematic Representation of the Decentralisation of Production



This to a large extent supports the view that innovation and niche markets are short-term phenomena, with the large retailers and producers quickly capturing the market (Rey, 1989). Further research, (Murray, 1987; Rainnie & Kraithman, 1992) notes that Benetton itself departs from the ideal (multi-skilled) integrative model by exploiting sub-contractors, who are poorly paid and take the burden of risk because of the nature of their relationship with the core employer (Legge, 1995). All variations in market demand are reflected in the level of employment in the secondary or peripheral sector (Brusco, 1982; Amin, 1991).

It is also well documented that there is a clear connection between the proliferation of small enterprises and the use of 'black' labour, the avoidance of social welfare, tax and minimum wage levels (Brusco, 1982; Bluestone & Harrison, 1986; Amin, 1991; Legge, 1995). As Brusco (1982) notes, these are all key factors in the development and maintenance of flexible patterns of work within this model of work organisation. Tomaney (1994) concludes his analysis on these patterns and practices of work by noting :

In summary, it is possible to identify three major problem areas emerging from the flexible specialization theory in its application to changes in the production process. These are: first, the utility of the mass production/flexible specialisation dichotomy itself; second, the inability to account for diverse outcomes to the process of restructuring ... and finally, the fact that even where instances of flexible specialisation can be identified it does not necessarily have the benefits for labour which they assume (p.164).

Despite the prominence of this model in the 'Post-Fordist' literature (Piore & Sable, 1984; Mathews, 1989; Sable, 1994), research indicates a lack of evidence for a skills-based revival focused on 'craft' skills (Sabel, 1982;

Tailby, 1999). Indeed, the research suggests that increasingly these smaller enterprises are being tied to national or foreign corporations (Tolomelli, 1988), a position supported by the research of Coriot (1980) and Pollert (1991), as the focus changes from economies of scope to economies of scale. The notion of flexible specialisation appears therefore to be more a regional phenomenon or variation (Amin, 1991; Burrows et al, 1992). In this context it appears to be associated with the ability to exploit rather than enhance the available human resources. As Hyman (1991:267) notes: "In this sense the 'second industrial divide' may mean literally, a growing polarisation in conditions of work". For a model which presumes to reflect and describe a new or Post-Fordist organisational paradigm its potential adoption is likely to be limited.

In this context, Wright (1995) questions the appropriateness and extent of the development of flexible specialisation in Australia. His research indicates that the impact of flexible specialisation has been confined to a small number of foreign owned organisations. Not least because of the conflictual nature of the industrial relations the relatively strong union movement and regulatory system.

2.4.3 The Japanese Model of the Flexible Firm

Whilst the 'Third Italy' model of flexible specialisation has attracted considerable interest in recent years, the emergence of Japan and Japanese organisations as dominant players in the world economies has generated significant interest when considering the country's limited natural resource base from which to establish such a position. As Amin (1994) notes:

.... no discussion of post-Fordist solutions is legitimate without reference to the highly successful combination of flexibility and rigidity as well as quality and price competitiveness, within mass production, perfected by the Japanese (p.22).

Against the perspective of economic uncertainty and difficulty in sustaining performance and growth in the 1970s and 1980s, Japan emerged as a strong performer in comparison to other advanced western market economies (Lipietz, 1987). During this period, in terms of GDP Japan moved from 18th at the start of the 1970s, to second behind the USA by the early 1990s on the table of OECD countries. Despite the country's fiscal problems through the last decade, Kuwahara (1998), notes Japan remains the second largest economy in the world and Japanese organisations have remained competitive in a variety of industrial sectors worldwide including manufacturing and the information and communications industries (Kikakucho, 1997; Beasley, 2000).

In attempting to identify the key features and characteristics of the rise of Japan's industrial dominance, particularly in the context of recent global economic instability, Kuwahara (1998) identified and categorised 20 critical factors in the economic success of Japan. The most important feature was 'effective labour utilisation'. The 'role of government' was ranked 9th, the 'undervaluing of the Yen' 14th, and the use of 'advanced technology' 18th. Further analysis of the Japanese labour market reveals that it has consistently been the second most productive and labour efficient workforce in the world through the 1970s and 1980s (behind the USA), combining the highest labour productivity with the lowest unit costs (Curson, 1986; OECD, 1992, 1995). Although significantly, the effects of the countries economic problems and the increasing competitiveness of other country's has seen Japan drop to 4th in 1995 and 9th by 1997 (Ross, Bamber & Whitehouse, 1998).

The emergence of Japan and its organisations came at a time when it appeared that the Keynesian regulatory framework and mechanisms for stimulating economic growth were no longer effective and many organisations were searching for a new way out of the economic 'crisis'. As Lipietz notes: "The object of this tentative search was a new principle of work organisation that

could provide the basis for a new regime of accumulation” (1987:137). In other words the focus became the exploration of more efficient utilisation of resources (in particular human resources) which the success of the Japanese model appeared to illustrate. As Lipietz (1987) again notes:

(The) Japanese did not simply catch up with the USA; it overtook it by discovering a new post-Fordist way of translating the skill of its producers both manual and intellectual, into productivity (p.137).

Whilst acknowledging the complex factors and relationship inherent in the success of the Japanese model, the utilisation of labour was the central factor in this model (Kumazawa & Yamada, 1989). This lead to a more detailed analysis of the Japanese model of work organisation to identify the key factors and their potential transferability (Dore, 1986; Kenney & Florida, 1988, 1993).

2.4.4 The Japanese Model of Work Organisation

What makes the Japanese model of particular interest is that it is based on the performance of large enterprises producing high volume goods for mass markets (Schoneberger, 1982; Wood, 1989; Naruse, 1991; Tomaney, 1994; Legge, 1995). In this context, Amin (1994) suggests that:

.... Japan offers a unique industrial paradigm that pulls together the scale economies and institutional advantages of mass production and corporatist regulation, and the flexibility of scope and scale guaranteed through sub-contracting, loose interdependencies within the organisations, labour flexibility, team working, cultures of consensus and co-operation (p.23).

More specifically the organisation and utilisation of labour to respond to changing market demands and the cost advantages it creates, identifies the Japanese archetype as a significant model for research and analysis (Dore, 1986; Tailby, 1999). In terms of work organisation, Dohse et al (1985) note:

Japanese management can flexibly allocate workers to do tasks on short notice according to changing requirements. Workers do not expect to do a single task but are ready to assume a multiplicity of tasks needed (p.120).

In addition to this individual flexibility, the development of a highly segmented organisational structure creates a dual-sector workforce (including a highly integrated network of sub-contractors). This provides management with the ability to continually re-configure these segments in response to changing market and productivity demands (Wood, 1989; Dore, 1986). As Kumazawa and Yamada (1989) point out:

The most important feature of the so-called Japanese-style management rests on the enormous flexibility large-scale enterprise has in its deployment of its 'manpower'. Major firms in Japan derive superior productivity from their power to control total labour cost by means of flexibility in workforce deployment (p.107-8).

As Figures 2.2 and 2.3 illustrate, the key differentials are between 'regular' employees at the core of the organisation (groups A, B and C), and the non-regular or peripheral workforce (groups D to M). These differentials focus primarily on the benefits they receive rather than the jobs they do. The core or regular workforce enjoy 'nenko' (lifetime employment), as they are identified as central to the organisation's future. 'Nenko' is also seen as compensation for the ambiguous nature of the work - a factor which is central to the development

of flexible patterns of work organisation (Dohse et al, 1985). The characteristics of the 'core' workforce, include high skill levels, internal career paths and continual training (Koike, 1983; Dore, 1986; Tailby, 1999).

In addition, they receive incremental pay awards based on tenure linked to the 'Spring Offensive' when unions (predominantly enterprise unions) and management negotiate annual agreements (Monden, 1981; Schonberger, 1982; Okimoto et al, 1984). The key features of this core work include generic work patterns, minimal job demarcations and high employee involvement and skill utilisation, which provides the organisation with both quality and cost flexibility (Dohse et al, 1985; Tomaney, 1994).

Whilst the terms and conditions of the different segments of the workforce are substantially different, it is quite common for the non-regular sector to be working alongside the regular employees. Predominantly part-time and seasonal employees, the non-core segment of the workforce provides the organisation with 'quantity' flexibility over its labour. The role of the non-regular workforce is to provide additional labour resources as and when required and act as a buffer to market variations for the regular workforce. The contractual relationship with the organisation reflects this casual relationship (Dore, 1986). As Kumazawa and Yamada (1989) note:

They are employed at a firm's local sites explicitly for a fixed period of employment, mostly from a few weeks to several months. But some may be re-hired many times for a considerable number of years (p.110).

Figure 2.2 Segmented Hierarchy of a Japanese Organisation

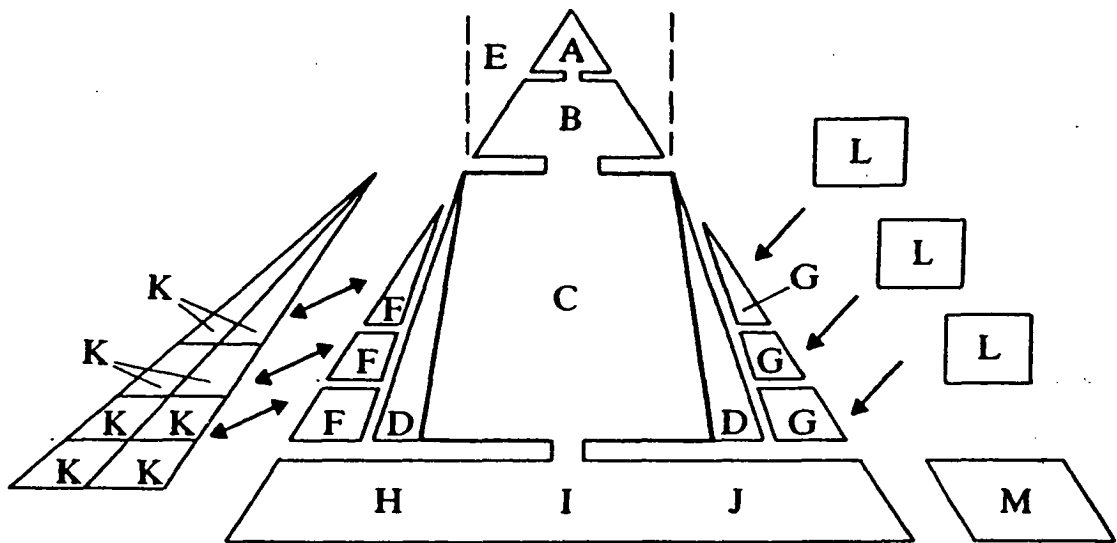


Figure 5.2 Segmented hierarchy of the workforce directly or indirectly employed by a big company

- Key:**
- A: top management
 - B: middle management
 - C: male regular employees
 - D: female regular employees
 - E: ex-senior-employees screened off from [B] or retired ones
 - F: subcontractor's employees working within the parent company
 - G: more or less specialized workers dispatched from independent labour-force supplying firms [L]
 - H: seasonal or temporary employees
 - I, J: part-time workers, mainly housewives and students
 - K: subcontractors or suppliers and their employees, the lower half of the so-called dual economic structure
 - M: foreign cheap labour employed abroad

Source: Kumazawa & Yamada (1989)

Figure 2.3 Japanese Dualist System of Labour Markets

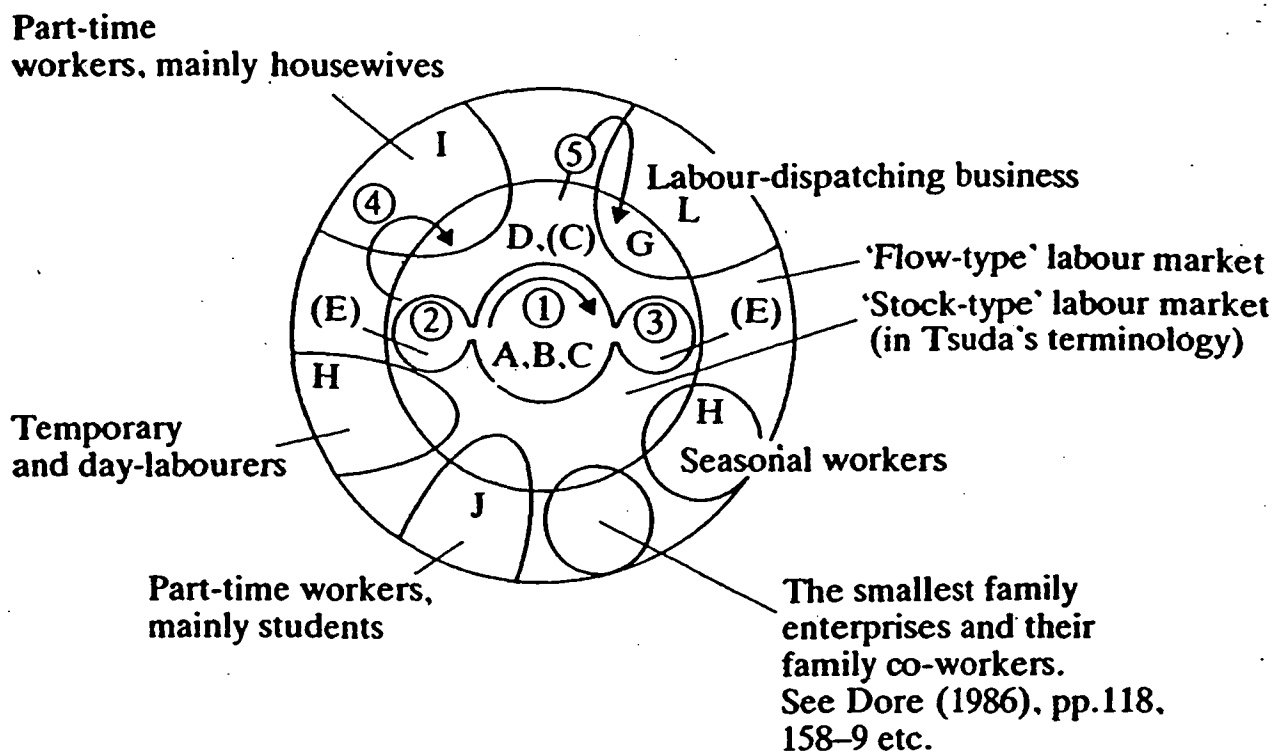


Figure 5.3 Dualistic system of labour market

Key: (1) Male regular employees, i.e. career-oriented, prospective 'core' of the corporate personnel, who are supposed to become 'multi-skilled' or generalist staff also with growing capabilities in supervising and human relations. However, as Tsuda puts down 'changing jobs' in this innermost circle, some may be forced not only to 'change jobs' within the company, but also to change employers, either to work for subsidiaries or subcontractors (2) under the influence of the company, or to work for venture businesses (3) created to diversify the business of the company. Whether such arrangements are to be temporary or permanent depends upon both the corporate strategy and merits or abilities of the employees thus transferred. (E) in 2 and 3, therefore, represents ex-employees who have finally been screened and cut off from the main career ladder in the original company. Tsuda's semi-circular arrow here can be seen as symbolizing the flexibility in using individual employees themselves.

The semi-circular arrow (4) stands for the movement of the female labour force. Women who get their first jobs as regular employees of the company retire when they marry or give birth to their first baby. Recently, however, more and more housewives tend to seek jobs as part-time workers either in the previous company or elsewhere when they get freed from child-rearing responsibilities. The other arrow (5) represents a similar movement of workers, female and male, who specialize in a certain field of jobs rather than pursue a 'lifelong' career formation in a specific company.

Source: Tsuda Masumi's 'Is The Dual Structure Being Renewed?' and slightly modified so that Tsuda's original chart can be related to our Figure 5.2.

Source: Kumazawa & Yamada (1989)

Whilst the number employed within this segment of the labour force will obviously vary, Kumazawa and Yamada (1989) estimate that the peripheral workforce can range from 10 to 52 per cent of the entire workforce. The relatively low proportion of regular or permanent employees allows the organisation to provide 'nenko' to this section of the workforce even when in severe recession (as the late 1990s has shown). The non-regular workforce also accounts for 37 per cent of all low skilled jobs and emphasises the fact that "this form of employment suggests that firms have highly routinized dead-end-jobs with short-training periods for the unskilled" (Kumazawa & Yamada, 1989:110).

To provide further flexibility, a highly integrated networking relationship with sub-contractors (in a similar context to the 'Third Italy' model) has been developed. Unlike the minimal relationships adopted in western industrial economies, the Japanese model is highly integrated, focusing on long term relationships. In fact, large proportions of sub-contractors are former employees and/or wholly owned subsidiaries of the central organisation. In many cases these sub-contractors supply only that organisation. Indeed, it is not uncommon for personnel to move between both organisations (Wood, 1991; Oliver & Wilkinson, 1992). The close relationship also enables communication to flow between the organisations about customer needs and wants, allowing an increase in market sensitivity and response (Dean & Evans, 1994). In addition the long-term development of such relationships facilitates the development of quality management between the organisations, further allowing the core organisation to focus on a minimum amount of suppliers (Tenner & DeToro, 1992). As Oliver and Wilkinson (1992) point out:

In combination, these elements permit a tightly integrated system of supply and assembly, with a minimum of waste (p.60).

Whilst there are obvious inherent risks in the development of sole suppliers, Turnbull (1991) notes that the advantages in reducing administrative costs, input variability and relationship building offset these issues. In addition, the obvious advantage of this relationship in the sense of understanding, the reduction of uncertainty, as well as the obligations that stem from such a relationship, works to protect both partners (Dore, 1986).

2.4.5 A Critique of the Japanese Model

Research into the Japanese model of work organisation has highlighted the advantages of the model, and several studies have concluded that it is suitable for transfer to other Advanced Western Market Economies (Dohse et al, 1985; Kenney & Florida, 1988, 1993; Oliver & Wilkinson, 1992). The competitive advantages of the Japanese model have been identified in terms of the flexible and integrative way in which management can deploy and redeploy the available human resources. The trade-off for the (core) employees is security and life-time employment (Wood, 1989). However, as noted above, the core workforce is the only beneficiary of these employment conditions, and even then these perceived benefits are limited (Kumazawa & Yamada, 1989).

Flexibility is central to the work, but the work itself is often no less repetitious and standardised (Schonberger, 1982; Dohse et al, 1985; Wood, 1991). In other words, the work is not fundamentally different, it is the way it is structured that provides the competitive advantage (Dohse et al, 1985, Wood, 1989). Indeed, far from seeing it as ideal for the workforce - given increased variety and responsibility - Dohse et al (1985) argue that the model is another form of work intensification. The limited power of trade unions in terms of independent voice (Tailby, 1999) has resulted in limited scope for negotiation. This almost unfettered management prerogative allows organisations to readjust working conditions almost unhindered. The concept of life-long employment or 'nenko'

has not prevented employers dismissing workers (particularly with the onset of the recession in the late 1990s) or more commonly, transferring them to subsidiaries with less advantageous terms and conditions (Dohse et al, 1985). Secondly, the nature of the employment recruitment system where large employers only recruit to the internal labour market at the lower end means that there is limited possibility of advancement outside that firm (Dohse et al, 1985). Thus the notion of the 'committed worker' (Kuwahara, 1998) can be seen in the context of the weak bargaining relationship between labour and management (Tailby, 1999). As Dohse et al (1985) note:

The far reaching dependence of the individual on management's evaluation of their performance is a decisive factor in the "committed worker".... They must continually demonstrate as individuals their usefulness to the firm through diligence, docility and flexibility (p.138).

As noted above, the integrated nature of the peripheral workforce and the minimal obligation the core organisation has to these employees provides further flexibility and cost advantage to the core organisation (Dohse et al, 1985). Thus, flexibility and commitment is a result of the significant imbalance in the relationship between management and labour, rather than a uniform commitment or cultural trait. This would suggest that the ability to adopt or transfer a fully-integrated model of a Japanese organisation would be difficult in the context of labour-management relationships in other advanced western industrialised countries (Dohse et al, 1985).

This issue of cultural transferability is discussed as the universalist and contextual paradigms in human resource management (Kuhn, 1970). In practice the universalist approach assumes convergence in sound management practices and principles regardless of national or cultural boundaries (Hofstede, 1983).

However, as Dowling, Welsh and Schuler (1999) have identified, the convergence paradigm has led to poor predictions of future performance. For example, Harbison in 1959 concluded that the Japanese must change their broad philosophy of organisation building otherwise the country was destined to fall behind in the ranks of modern industrialised nations (cited in Dowling et al, 1999:13).

The contextual paradigm in contrast examines the differences between and within work patterns and practices. As Brewster (2001) notes:

... this paradigm emphasizes external factors as well as the actions of management within the organization. Thus it explores the importance of such factors as culture, ownership structure, labour markets, the role of the state and trade union organization as aspects of the subject rather than influences upon it (p. 258).

Child's (1981) research into this debate identified evidence of both paradigms. As Dowling et al, (1999) explain:

His conclusion was that although firms in different countries are becoming more alike (convergence approach), the behavior of individuals within these firms is maintaining its cultural specificity (divergence approach) (p.13).

In this context, Brewster (2001) suggests that research should take an increasing international and comparative view, particularly in the areas of human resource management and the nature of work.

2.4.6 Assessing the Japanese Model as a Paradigm

Despite the criticism of this model (and noting the universalist and contextual paradigms), what appears most significant in the case of the Japanese model is the theoretical transferability (particularly as labour markets are deregulated) and practical evidence of the diffusion of the model (Schonberger, 1982; Morris, 1988; Wood, 1991; Oliver and Wilkinson, 1992; Tomaney, 1994). Indeed, Kenney and Florida (1988) go even further and argue that Japanese work organisation provides the new framework for industrial production:

The successful implementation of Japanese work organisation indicates that post-Fordist production is generalizable across quite different national contexts..... Far from being unique to the Japanese context, social organisation of post-Fordist production appears to be setting in motion a dramatic transformation of work organisation, industrial structure, and labour relations across much of the landscape of advanced industrial capitalism (pp.144-5).

The Japanese model has been identified in UK and US research as proto-typical of post-Fordist 'hybrid' work patterns (Oliver & Wilkinson, 1992; Kenney & Florida, 1988, 1993). Considering the success with which Japanese organisations successfully transplant whole systems into other advanced western industrial nations (Ackroyd et al, 1988; Turnbull, 1991; Morris & Imrie, 1991; Oliver & Wilkinson, 1992; Oliver, Morris & Wilkinson 1992; Kenney & Florida, 1993) to develop new markets on the one hand and avoid protectionist policies on the other (Morris, 1988) the potential and significance of these changes is likely to have a bearing on contemporary patterns of work in advanced western market economies. As Kenney and Florida (1993) note, after identifying the success of the mediated Japanese work patterns in non-Japanese firms in a variety of industries across the USA:

Our work and the work of others suggests that the 'Japanese Model' has emerged as an international best practice organisation playing a role similar to the US 'Fordist Model' in the previous era. Viewed as such it is not at all surprising that the Japanese model has become a focal point for global diffusion (p.181).

As Jurgens (1989) concludes: 'The Japanese model has to be taken seriously precisely because of its importance to management theory and practice' (p.284). The growing evidence of absorption of Japanese-style work organisation and management practices (in particular the emergence of flexible patterns of human resource utilisation) supported by techniques such as total quality management (TQM), benchmarking and best practice, which focus on increased organisational performance through more effective resource utilisation, provides clear evidence of the emergence of these concepts and techniques as key themes in the development of organisational competitiveness (Kenney and Florida, 1988, 1993; Wood, 1989; Oliver & Wilkinson; 1992). The following section explores these issues and the development of theoretical and practical constructs proposed to enhance enterprise performance within this new 'post-Fordist' economic environment in the context of the influence of the key aspects of the Japanese model.

2.5 The Evolution and Transference of New/Flexible Patterns of Work

The economic crises of the 1970s had the effect of increasing the focus on more efficient and effective patterns of labour usage and organisational structures able to accommodate and respond to the changing economic environment as key elements in developing competitive advantage at the level of the organisation (Piore & Sabel, 1984; Atkinson, 1984; OECD, 1986; Mathews, 1989; Bamber, 1990, 1992; Prowse, 1990; Blyton & Morris, 1992; Burrows at

al, 1992; Das & Elango, 1995; Schuler & Rogovsky, 1997; Danford, 1998). As Legge (1995) explains:

For organisations to have the capacity to manage planned change and to be adaptive to uncertainties and unanticipated pressures at all levels in the organisation the structure must avoid the rigidities associated with hierarchical machine-like bureaucracies..... Instead, organisations should seek flexibility via organic structures, extensive decentralisation and delegation of control and, therefore through the design of jobs (p.139).

From the extensive debate on flexibility (Atkinson, 1984, 1987; Pollert, 1988, 1991, 1992; Edwards, 1992; Legge, 1995) what has emerged from empirical research (NEDO, 1986; Hakim, 1987; Kenney & Florida, 1988, 1993; Bamber, 1990; Bamber et al, 1992; Oliver & Wilkinson, 1992; Danford, 1998) is the increasing use and development of both internal and external labour markets to enhance flexible patterns of work organisation. These in turn facilitate more timely responses to the competitive forces of the market (Atkinson, 1987; Hakim, 1987; Rimmer & Zappala, 1988; OECD, 1990a, 1990b; Das & Elango, 1995).

The structure and development of these flexible patterns of work organisation have been influenced by the Japanese model (NEDO, 1986; Wood, 1989; Kenney & Florida, 1993) with the increasing emphasis on the deployment and utilisation of the enterprise's human resources (Atkinson, 1984; Dore, 1986; Kumazawa & Yamada, 1989; Bamber, 1990). The use of flexible patterns of human resources first emerged in the management literature as a key theme in increasing enterprise efficiency in the mid-1980s (Piore & Sabel, 1984; Atkinson, 1984, 1985; Curson, 1986). Underlying the development of these work patterns was the integration of labour drawn from both the internal and

external labour markets (Hakim, 1987). This has resulted in a fundamental redrawing of the boundaries of the traditional organisational structure which was underpinned by hierarchical relationships and rigid labour markets (Wood, 1989; Thompson & McHugh, 1995). Flexibility is achieved therefore through management's ability to adjust and utilise the available human resources to the economic requirements of the organisation (Atkinson, 1984; Cross, 1985; Procter et al, 1994; Legge, 1995). As Ursell (1991) notes :

A major goal implicit in the idea of flexible labour is to render HRM as a strategic, rather than merely a tactical activity..... By this is meant a multi-fold process involving one or many of the following;

- i) for any individual worker, a wider range of tasks and abilities and a willingness to employ them on behalf of the organisation which purchases them;
- ii) a greater variety in the time periods of employment;
- iii) a greater ability by the employer to dispense with certain workers when not strictly essential to the production process (an ability which may be grounded in the replacement of traditional contracts of employment by franchise and sub-contract relations, and/or the greater use of part-time and temporary employees); and
- (iv) a greater capacity among workers (in both internal and external labour markets) to be so deployed, necessitating changed attitudes for all, and skill and time-management change for some (p.312).

Atkinson (1984) and the OECD (1987) developed and defined these patterns of labour utilisation and Rimmer and Zappala (1988) and Bamber (1990) have extended these definitions into several distinct but integrated patterns of work at the level of the firm. These new patterns of work have been grouped under

the generic definition of flexible patterns of work organisation. However, it is the integrative use of these patterns of work that provides management with competitive advantage (Atkinson, 1984; Emmott & Hutchinson, 1998). The following analysis examines these various forms of internal and external labour flexibility.

Functional flexibility. Underpinning the need to develop a stable nucleus of employees with a wide range of skills and abilities which encompass a range of tasks is 'functional flexibility' (Emmott & Hutchinson, 1998; Sparrow & Marchington, 1998). Central to this philosophy of work organisation is the reversal of the Taylorist or scientific management practices of fragmentation and de-skilling (Treu, 1992). Functional flexibility places the emphasis on management's ability to deploy and redeploy particular sections of the workforce (identified typically as permanent or core employees) in response to demand as and when required (Gallie et al, 1998). As Atkinson (1984) notes:

This might mean the deployment of multi-skilled craftsmen from mechanical, electrical and pneumatic jobs; it might mean moving workers between indirect and direct production jobs or it might mean a complete change of career... As products and production methods change, functional flexibility implies that the same labour force changes with them, in both short and medium term (p.28).

To facilitate this qualitative approach to labour utilisation a prerequisite is the need for procedural changes in the way work patterns and practices are developed. In particular, these involve removing the restrictions associated with traditional work practices (such as lines of demarcation) which inhibit changing work requirements, and encouraging a (re)combination of jobs and a reskilling of employees to accommodate changing circumstances and demands. In addition, the provision of mechanisms to support and encourage these changes,

such as investment in training and development, are fundamental. The development of such a workforce also requires a participative/consensual management style to support rather than direct the new workplace and environment (TUC, 1986; Rimmer & Zappala, 1988; Horstman, 1988; Prowse, 1990; Monks, 1998; Claydon, 1998; Gallie et al, 1998). The volatility of product markets and the blurring of skill boundaries through technological change provide the continuing environment for the development of this approach to work organisation. The form or interpretation of functional flexibility can therefore vary even within the span of one particular skill band (NEDO, 1986).

Whilst generally interpreted as a skill formation and enhancement process (Piore & Sabel, 1984) critics of this approach to work organisation (TUC, 1986; Pollert, 1988, 1991; Garrahan & Stewart, 1992; Tailby, 1999) point to the de-skilling and work intensification aspects of downward enlargement of job profiles (noted in the Japanese model) which fall within the umbrella term of functional flexibility. In this context functional flexibility provides efficiencies through cost-cutting rather than skill development (Garrahan & Stewart, 1992). In the short-term this may be effective, but in the context of a long-term strategy to develop a committed, flexible, responsive and multi-skilled workforce, this requires a long-term investment strategy. In the long-term the cost-cutting model is not likely to enhance enterprise efficiency and/or effectiveness (Mathews, 1989; Procter et al, 1994; Emmott & Hutchinson, 1998). This is linked to the development of high performance work systems in the US. As Rimmer (1998: 619), indicates:

US research indicates that systems of complementary human resource management practices can be linked to organisational performance. Huselid (1995) identifies systems which link employee skill development and organisational structures.

However, as Cappelli et al (1997) comments from the research the survival of these work practices in those companies that have them and for further diffusion of these practices gives cause for concern.

Numerical flexibility. Numerical flexibility is a quantitative approach to the utilisation of an organisation's human resources. It is based on the principle of relating the size of the workforce to the levels of economic activity easily and at short notice (Atkinson, 1984). Traditionally, cyclic trends and short term fluctuations have necessitated the use of numerical flexibility (Jamieson & Webber, 1991). The utilisation of this form of flexibility has tended to focus on overtime, supported to a lesser extent by part-time or seasonal employees as and when required, rather than a strategic approach to use of the external labour market (Rimmer & Zappala, 1988; Burgess, 1990, 1997; Gallie et al, 1998).

To facilitate the development of such work practices the employment relationship is likely to be based upon a less formal contractual relationship (Brookes, 1990; Tailby, 1999). Typically this might include sub-contracting and the development of a pool of permanent and on-call casual and part-time staff. As the workload fluctuates, management has the option of adjusting or redeploying its human resources accordingly (Atkinson, 1984; Rimmer & Zappala, 1988; Bryson, 1999). The nature of the markets, with increasing unpredictable short-term fluctuations combined with the increased competitive pressures, make this efficient and effective to sustain, as organisations are relieved of the cost of a fixed (unproductive) labour (NEDO, 1986; Bryson, 1999). Whilst these patterns of work organisation have always been traditional and legitimate aspects of the labour markets, the use of these forms of work practices to externalise traditional core organisational activities is the major factor in increasing enterprise efficiency through numerical flexibility (TUC, 1986; NEDO, 1986; OECD, 1986, 1987; Wainwright, 1987; Rimmer &

Zappala, 1988; Bamber, 1990; Burgess, 1994; Benson & Ieromino, 1996; Hartmann & Patrickson, 2000).

Work Time flexibility. Work time flexibility or internal numerical flexibility, is a further process of adjusting the “quantity and timing of labour input without modifying the number of employees” (Rimmer & Zappala, 1988:567). Whilst this has been part of the traditional patterns of work organisation in the context of overtime and shift working, it has involved financial penalties (overtime, allowances etc) for the organisation. Incorporating these patterns of work into contract hours per week, month or year provides the organisation with the flexibility to arrange and adjust work patterns, and leads to a closer correlation between labour utilisation and production demands (Blyton, 1992; Ozaki, 1999) without financial penalty or the additional costs of hiring and firing labour (Rimmer & Zappala, 1988; Gallie et al, 1998).

Financial Flexibility. In order for flexible patterns of work to develop, there is a need to relate the reward system to both performance and market conditions. Financial flexibility is a compensation system designed to complement and facilitate the development of both numerical and functional patterns of flexibility. As Atkinson (1984) outlines:

Financial flexibility is sought for two reasons; first, so that pay and other employment costs reflects the state of supply and demand in the external labour market..... Secondly, and probably of greater importance in the long term, pay flexibility means a shift to new pay and remuneration systems that facilitate numerical or functional flexibility, such as assessment-based pay systems in place of rate-for-the-job systems (p.29).

Financial flexibility therefore, provides the duality of (a) allowing market forces to dictate relative wage rates, providing cost efficient numerical flexibility to the organisation; (b) provides the incentive for the core workforce to increase its skill-base. The focus of financial flexibility in this case is to provide the terms and conditions to encourage skill enhancement (functional flexibility) of the enterprise's core or permanent workforce.

Procedural flexibility. Procedural flexibility is the central tenet in the development of flexible patterns of work, particularly in the highly regulated labour markets. Procedural flexibility is concerned with the establishment of consultative mechanisms for introducing changes or negotiating variations in work practices. The focus of change is on legal aspects of work (binding terms and conditions) and traditional patterns and practices (custom and practice) covering the employment relationship (Boyer, 1988; Brookes, 1990; Burgess, 1990; Campbell & Burgess, 1997). As Wood (1989) notes:

In most industrialised countries the 'flexibility debate' is concerned with changing rigidities in labour and employment patterns (and) has been an important element in industrial policy making and industrial relations (p.1).

The process can essentially range from a directive through to a participative framework of negotiation. The substantive aspects of the traditional 'Fordist' relationship between employer and employee and their representative (trade unions) is fundamentally re-cast for flexible patterns of work to be fully utilised (Mathews, 1989; Charlesworth, 1997; Ozaki, 1999). Central to the tenet of procedural flexibility is the acceptance of, and a role in managing and co-operation in, the new relationship for the employees and their representatives (Grint, 1991). As Rimmer and Zappala, (1988:537) note: "Such procedures are

indicative of commitment to joint administration of labour flexibility within the workplace”.

Despite the increased interest in the development of flexible work practices Atkinson (1984) comments: “There is little that is new in any of these management aspirations, but what is new is the growing trend for firms explicitly to seek all forms of flexibility” (p. 29). Therefore it is the strategic combination of work patterns and practices that increases the utilisation of the enterprise’s human resources (Atkinson, 1984; Hakim, 1987 Mathews, 1989; Procter et al, 1994).

2.6 Theoretical Frameworks for the Flexible Organisation

The emergence of flexible patterns of work to facilitate more efficient and effective utilisation of human resources has also affected traditional patterns of organisational structure. As Thompson and McHugh (1995) point out:

The constant forms of uncertainty and discontinuous change cannot be handled adequately by the bureaucratic structures and decision-making processes of traditionally designed organisations (p.166).

As noted, competitive advantage through flexibility lies in the combination of various patterns of work (Atkinson, 1984). For organisations to absorb these new work patterns and respond effectively to the less stable and more competitive environment requires a paradigm shift in organisational structures (Hassard & Parker, 1993). The focus on integrating these various patterns of work has seen the emergence of models both reflecting and interpreting the work patterns incorporated into the Japanese organisational framework. In particular, the Institute of Manpower Studies (IMS) Core-Periphery or Flexible Firm model (Atkinson, 1984) has attracted particular attention (Cross, 1985;

MacInnes, 1988; Pollert, 1988, 1991, 1992; Hunter et al, 1993; Procter et al, 1994; Legge, 1995). As Wood (1989) notes:

The flexible firm has many similarities with primary Japanese firms..... Atkinson's model has particularly attracted attention as a possible analytical framework for 'the main parameters of change' in employment practices and as a normative tool to help management plan new strategies (p.2).

This model attempts to provide the paradigm shift in organisational structures, by incorporating employment structures associated with the emerging patterns of work organisation (Penn, 1992; Burgess, 1997). Firstly, the flexible firm redraws the organisational boundaries to address the dynamics of the external economic environment. Secondly, the model incorporates the changes required within the organisation regarding variations in the employment relationship. The model therefore provides a more fluid and adaptive organisational form (Meulders & Wilkins, 1987; Blyton & Morris, 1991; Burgess, 1997). As Thompson and McHugh (1995) identify:

(the flexible firm model).... is based on a break with unitary and hierarchical labour markets and organisation of internal means of allocating labour, in order to create a core workforce and a cluster of peripheral employment relations (p.174-5).

In place of the traditional hierarchical structures, the flexible firm model redefines the organisation into two broad segments - the core and the periphery (Atkinson, 1984; Thompson & McHugh, 1995). The make-up of the two segments follows the outline of the Japanese model or framework (see Figures 2.2 and 2.3) in that the core workforce is characterised by permanent, highly skilled employees with internal career paths (NEDO, 1986; Wood, 1989). As a

result, 'core' employees tend to experience a higher degree of job security with resources provided for training in firm-specific skills. This segment of the organisation is characterised by functional forms of flexibility (Atkinson, 1984; Hakim, 1987; Wood, 1989). As Atkinson (1984) points out:

.... functional flexibility is provided both in the short-term (involving cross-trade working, reduced demarcation, and multi-discipline teams) as well as longer term (changing career and retraining). Terms and conditions of employment are designed to promote functional flexibility. This often involves single status conditions, and the displacement of 'rate-for-the-job' by pay systems which reward the acquisition and deployment of new skills, and which are at least partly based on performance assessment (p.29).

In contrast, the peripheral workforce is associated with the organisation's development of numerical flexibility. The key function or strategic aspect of this sector for the organisation is the undertaking of day-to-day activities, which are important but not vital to the organisation. As Atkinson (1985) notes:

In effect they are offered a job not a career. For example, they might be clerical, supervisory, component assembly and testing occupations. The key point is that their jobs are 'plug-in' ones, not firm specific. As a result the firm looks to the external market to fill these jobs and seeks to achieve numerical flexibility and financial flexibility through the most direct and immediate links to the external labour market than is sought for the core group (p.20).

Where either the core or peripheral workforce need supplementing the secondary peripheral workforce accommodates this through part-time temporary or sub-contracting work with minimal organisational commitment or

disruption (Morris & Imrie, 1991). The new organisation therefore takes the form of a core with a variety of peripheral activities to serve its changing requirements as Figure 2.4 illustrates. The focus of the flexible firm model is to closely match organisational (labour) resources with work demand, increasing the efficiency of the organisation and dampening the effects of market volatility and uncertainty, thus increasing organisational effectiveness (Atkinson, 1984, 1987; Blyton & Morris, 1991).

2.6.1 A Critique of the Flexible Firm Model

The core-periphery model has generated significant debate (Atkinson, 1984, 1985; Pollert, 1988, 1991, 1992; MacInnes, 1988; Burrows et al, 1992; Hunter et al, 1993; Procter et al, 1994; Legge, 1995; Burgess, 1997). What is distinctive about this model and its approach to the organisation and management of human resources is the extent to which it implies a distinctive strategy on the part of management in developing more efficient and effective labour utilisation (NEDO, 1986; Wood, 1989; Procter et al, 1994; Burgess, 1997). Critics of the model contend that it is simplistic and argue that change is far more uneven and complex (Pollert, 1988; 1991). Therefore, they conclude that the model is too abstract to represent reality (MacInnes, 1988; Pollert, 1991; Burrow et al, 1992; Hunter et al, 1993).

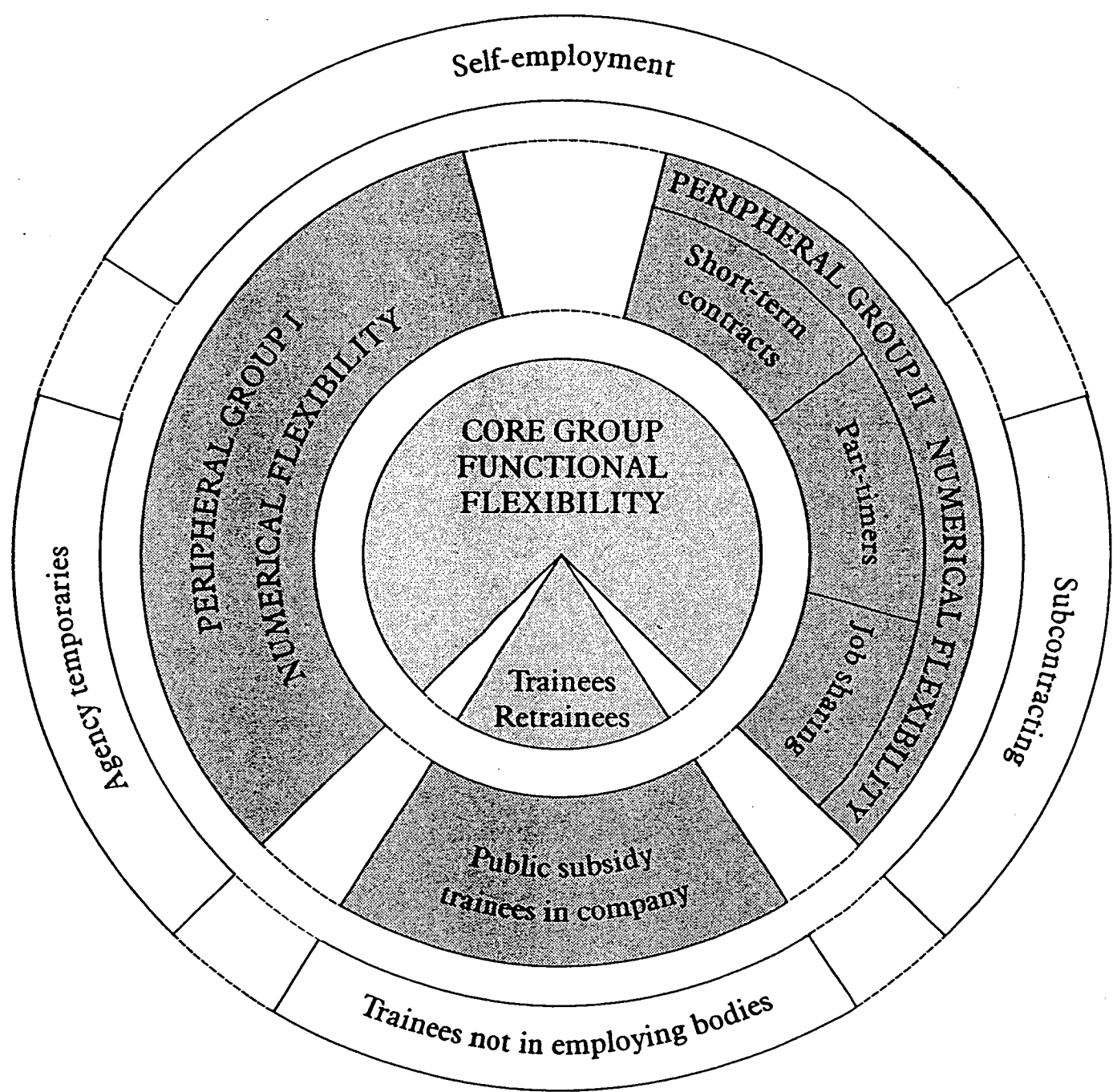
The model is also criticised for its promotion of variation in terms and conditions of employment within the one organisation (Brookes, 1990; Campbell, 1993; Burgess, 1997). The outcome of which it is argued is the creation of a (skill) polarised workforce with an elite core workforce and a disenfranchised low-skilled, low-wage workforce (TUC, 1986; Grint, 1991; Hyman, 1991; Garrahan & Stewart, 1992; Hunter & McInnes, 1991; Emmott & Hutchinson, 1998; Legge, 1998).

From a management perspective, it is argued that the model incorrectly assumes that organisations have uniformly moved from ad-hoc to explicit labour strategies in both the short and long-term (Pollert, 1992; Hunter et al, 1993; Gallie & White, 1994; Legge, 1998). In addition, many researchers allude to the lack of empirical evidence to support the uniform development of the model (Hakim, 1990; Pollert, 1988; Hunter et al, 1993; Wilkinson & White, 1994). Bryson (1999), argues is the key problem for the viability of the flexible firm is the seemingly lack of interest by organisations in it as a strategic device. Despite the fact that as Bryson (1999) notes the debate about the flexible firm has receded in recent years paradoxically he notes evidence in recent years is increasingly emerging of organisations reflecting the core-periphery structure of the model. Indeed, as Boyer (1988) has commented the term and the growing literature on the subject of flexibility means it cannot be dismissed. In the same vein Harvey (1989) noted:

The evidence for increased flexibility throughout the capitalist world is simply too overwhelming to make Pollert's counter-examples credible. The argument that there is an acute danger of exaggerating the significance of any trend towards flexibility... stares most workers in the face (p.191).

Indeed, the general trends in labour force data from many advanced western market economies support the increasing move to more flexible patterns of work (Prowes, 1990; OECD, 1992; Treu, 1992; Procter et al, 1994; AWIRS, 1995; Burgess, 1997; Brewster, 1997, 1998; ACIRRT, 1999). Despite the criticisms, the model does provide a framework for analysis, insight and explanation with respect to the development of new patterns of work (Garrahan & Stewart, 1992; Wood, 1989; Procter et al, 1994; Burgess, 1997). Indeed, Legge (1995) points out that with regard to the Benetton model of flexible specialisation:

Figure 2.4 The IMS - Flexible Firm Model



SOURCE: Atkinson, J. 1985. *Flexibility, Uncertainty and Manpower Management*, Institute for Employment Studies (formerly the Institute of Manpower Studies), Brighton, England.

.... 'Benetton', the supposed exemplar of the industrial district, has come to resemble not a nexus of firms all flexibly specialised and employing highly committed skilled workforces, but a network dominated by large firms modelled largely along the lines of Atkinson's flexible firm (p.152).

Thus the flexible firm model provides a framework for focusing on the extent of change and development of these new patterns of work at the level of the enterprise, providing a more comprehensive and useful means of analysis (Procter et al, 1994). In addition, it provides evidence of the development of new management techniques focusing on more efficient utilisation of organisational resources (in particular labour or human resources) thus enhancing performance (or effectiveness) through flexible patterns of work (CAITS, 1986; Procter et al, 1994; Hakim, 1987; Burgess, 1997; Stredwick & Ellis, 1998). As Watson (1997) concludes:

The model is perhaps best seen as an attempt to locate some patterns in changes which are occurring in a piecemeal way across employing organisations. If we see strategic change in employment practices as patterns in outcomes rather than as a deliberate and concerted plan then the evidence, though not overwhelming, does suggest that important changes are taking place (p. 349).

2.7 Human Resource Management and the Flexible Firm

The shift in the economy that focused attention on the development of more efficient and effective organisational structures has gone hand-in-hand with the growing recognition of the need to manage human resources in a strategic way. Increasingly, this was seen as critical for competitive advantage of

organisations in a progressively more competitive global and deregulated market. The concept of Human Resource Management (HRM) emerged in the United States (Beer et al, 1984), and emphasised the integration of HRM into strategic policy formulation. In practice this is seen as the integration of human resource policy and business strategy. Specifically this means that the policy areas within human resources of recruitment and selection, training, appraisal and rewards would be clearly coordinated (Wright & McMahan, 1992; Buller & Napier, 1993; Purcell & Ahlstrand, 1995; Torrington & Hall, 1998). The focus on the resource-based view of the firm within the human resource literature has reinforced the importance of synergy. It is argued that the horizontal integration of human resource policy areas coupled with the vertical linkage with business strategy enables an organisation to achieve competitive advantage from building and defending human resources that add unique value which cannot be readily copied (Boxall, 1994; Kamoche, 1996; Barney & Wright, 1998)

The deregulation of the labour markets in Australia and the development of more flexible work practices have increased the focus on HRM to develop more efficient and effective work policies and practices (Rimmer & Zappala, 1988; Thompson & McHugh, 1995). The seminal research in the area has noted the potential that HRM offers to organisations that are facing the 'new competitive environment'. Miles and Snow (1984), Collins (1987) and Schuler and Jackson (1987) all supported the need for a tight fit between organisational strategy, mission and personnel practices and policies as a key to success and competitive advantage. This may initially seem at odds with the development of the flexible firm model, where the focus is on a small core of employees surrounded by peripheral employees in which the organisation has no long-term investment. Research in the field has generated a variety of perspectives and theories associated with the development of HRM. Specifically this has focused on what has been described as the 'hard' and 'soft' approaches to HRM, a

distinction that has ramifications for the organisation and management of labour (Guest, 1987; Hendry & Pettigrew, 1990).

Both the hard and soft aspects of HRM focus on the integration or fit between business strategy and HR policies and practices (Legge 1995). It is only through this fit that competitive advantage is enhanced (Schuler & Jackson, 1987, 1999). The hard approach takes a quantitative approach where human resources are a factor of production which needs to be systematically measured and monitored (Legge, 1995). In the context of the employment relationship, the focus is on increasing efficiency and reducing labour costs (Wright, 1995). In other words, human resources are a variable cost (Bratton & Gold, 1999). This approach reflects the use of peripheral employees in the flexible firm model such as part-time workers, those on fixed-term contracts, temporary employees and freelancers (Legge, 1995).

The soft approach, while still emphasising the integrative aspect of HRM, focuses on the qualitative aspects of managing human resources. This approach sees employees as valued assets, which provides competitive advantage. The emphasis is therefore on the retention and development of these assets (Storey 1987, Legge 1995). The return for the organisation will be the increased commitment, quality and flexibility of these resources (Guest 1997). This perspective reflects the development of the core or functionally flexible workforce within the flexible firm model (Thompson & McHugh, 1995; Bratton & Gold, 1999). The soft approach also concurs with the development of high performance work systems and the extensive use, integration and alignment of recruitment, selection, training, performance appraisal and reward practices, which emphasise quality, innovation, flexibility, the speed of market response and customer service (Flood, 1998). This has been shown to be positively linked to organisational outcomes (Huselid, 1995; Tomer, 2001), particularly in highly turbulent environments (Farias & Varma, 1998;

Osterman, 2000). For the core employees this translates into job security, superior terms and conditions and career opportunities, or what Flood (1998) describes as a 'win-win' scenario.

In a traditional organisational structure, these two hard and soft perspectives create contradictions and tensions in the development of HR policies and practices. Whilst the soft perspective emphasises commitment, trust and development, the hard perspective focuses on cost reductions, monitoring, outsourcing and downsizing, which places little emphasis on long-term strategic development (Wright 1995). However, the strategic emphasis placed upon the development of the flexible firm model identifies HRM as an investment related to building strategic capabilities that provide competitive advantage for the organisation. Where this is not the case, cost, risk and other considerations lead to the decision to shift to the periphery work and labour (Greer 2001:6). The literature on the core-periphery model portrays this as a means of enabling organisations to focus their resources on the core business by developing new forms of work for other business areas (Thompson & McHugh, 1995). By matching organisational (human) resources more closely with customer or product demand, organisations should reduce fixed labour costs and increase efficiency and competitiveness (Lacity & Hirschheim, 1993; Ang, 1994; Domberger, 1994, 1999; Mitchell, 1998). The ability to combine external and internal labour markets enables a quick response to market demands with minimum disruption; for example, moving employees between jobs or adjusting the level of human resources in response to fluctuation or changes (Thompson & McHugh, 1995; Brewster et al, 2000). The ability to change (or redraw) the structure of the workforce or work patterns has been described as a key to efficient and effective utilisation of human resources (Emmott & Hutchinson, 1998). Thus the development of a core-periphery organisational structure encompasses the development of strategic human resource management emphasising the flexibility and the re-allocation of resources to the

organisation's core activities through the simultaneous emphasis on both the hard and soft approach to HRM (Prahalad & Hamel, 1990). In terms of future trends the increased demands for competitive advantage, cost effectiveness and flexibility are likely to see the integration of internal and external labour markets as organisations divest themselves of non-core or non-competitive activities.

2.8 Developing International Standards for Competitiveness

The increasing competition and volatility of the marketplace has been the catalyst for organisations to seek sources of competitive advantage. A key element in the success of the highly segmented Japanese organisational model is the development of quality management both within the core organisation and the periphery (including buyers, suppliers and sub-contractors) (Turnbull, 1991). Combined with associated techniques such as best practice and benchmarking, these practices facilitate the development of a highly responsive organisational structure, and provides the platform for continual assessment and improvement through a review process that incorporates the monitoring of internal and external work practices as well as those of competitors (Zairi, 1996:58). As Macneil et al (1994) note in this context:

Accepting the challenge to survive in a competitive market, they (organisations) have embraced two principles. The first concerns their human resources. The stayers now manage their human resources to improve competitiveness..... managers want a smaller, more flexible and more co-operative workforce. But it only makes sense if the second principle is adopted. This concerns customers. Quality management methods seek to put the customer first..... In Australia the competitive challenge often leads to the quality management response (p.9).

The following sections explore the development of this second principle in more detail in terms of its link to the development of flexible patterns of work and its practical application in the development of competitive advantage.

2.8.1 Total Quality Management and New Patterns of Work

Reflecting the influence and practices of the Japanese model or paradigm, the management of quality has also been linked with enhancing organisational flexibility, efficiency and performance or effectiveness (Spencer, 1994; Hunt, 1993; Watson, 1997) particularly through the development of functional flexibility (Cole, 1993; Hill, 1991, 1995). Functional flexibility provides the prerequisite conditions to empower employees by providing greater capacity for decision making and responsibility at the shopfloor level (Rimmer & Zappala, 1988; Hill, 1991; Boynton, Victor, & Pine, 1993; Wilkinson & Wilmott, 1995; Hackman & Wageman, 1995). Whilst markets continue to change, quality facilitates innovation, rapid market response and therefore increased product availability (Chorn, 1991; Hill, 1995; McArdle et al, 1995; Wilkinson & Wilmott, 1995; Wilkinson, Redman & Snape, 1995). Quality and competitive advantage can also be developed through the Buyer-Supplier link (numerical flexibility), where continual two-way communication facilitates a responsive change to the dynamics of the market.

Total Quality Management (TQM) builds on previous forms of quality assurance, but takes an holistic approach, arguing that to be successful it needs to be undertaken by all members of the organisation (Munro, 1995). As Hill (1991) states:

It (TQM) seeks to involve employees from shopfloor to senior management, in a quality improvement culture. It is not just tacked on, so the argument runs, but promises a fundamental overhaul of the labour process (p.197).

Dale and Plunkett (1990) concede that a concise definition of TQM is difficult. This can be attributed to the variety of forms TQM can take (Waldman, 1994; Reeves & Bednar, 1994; Hackman & Wageman, 1995; Tuckman, 1995; Wilkinson & Wilmott, 1995). Attempts to draw distinctions between the various processes at work in TQM have focused on the 'hard' and 'soft' approaches to quality (Oakland, 1989, 1993; Dale & Cooper, 1992; McArdle et al, 1995). The 'hard' aspects of TQM focus on the quantitative approach of statistical processing (Wilkinson, Allen & Snape, 1992). The 'soft' approach focuses on qualitative aspects of quality - internal customer orientation, employee empowerment, cultural change and training (Wilkinson, 1992; McArdle et al, 1995; Tuckman, 1995). As van Schalkwyk (1998) notes:

Total quality will continue to remain a strategic issue for competitiveness far into the next century in a global economy characterised by intense competition and continually increasing customer demand (p.124).

Whichever aspects are emphasised, TQM is being identified with increasing organisational effectiveness (Legge, 1995). In this respect there is a convergence between the management of quality and the management of human resources, as they both focus on enhancing flexibility, efficiency, quality and performance through human resources (Chorn, 1991; Hunt, 1993; Spencer, 1994; McArdle et al, 1995). This link is critical as performance measures increasingly incorporate a customer focus and non-financial measures (van Schalkwyk, 1998). As Kerfoot and Knight (1995) note:

.... quality management 'breathes' new life into the large corporation, facilitating its survival in the threatening circumstances of intensified competition in destabilised consumer markets (p.273).

The fundamental change that TQM brings to organisations is cultural, in that each process or production point learns to recognise that the next person down the line in the labour process is their customer. In other words, customers are constructed where none existed previously (Atkinson, 1990). As Legge (1995) illustrates an organisation's human resources become central to the development of TQM:

TQM requires the involvement of all. This includes the continuous support of senior management to drive a culture of quality; their delegation of major responsibilities to inter-departmental and cross-functional middle management project teams; the enlisting of the commitment of 'empowered' workers, organised into teams and participating in decision-making, to take responsibility as 'suppliers' of zero-defect goods to internal customers. It also involves developing high trust relationships with external suppliers, based on long-term commitment, cooperation and mutual obligation.... (pp.219-220).

TQM therefore focuses on the organisational culture, structure, management of production and the management of human resources, supported by techniques of control and monitoring (Sashkin & Kiser, 1993). At an organisational level, management must re-evaluate its attitudes, behaviour, organisational structures and processes, in order to facilitate the development of TQM. With regard to structures and processes, change in the organisational structure needs to focus on delayering and simplifying the organisation's process, to enable decision-

making to be pushed down the organisation, to facilitate the development of team-based work and more open communication (Hill, 1995). These tenets are central to empowering employees to become responsible for the quality of their work (Guest, 1991).

Thus, TQM has major implications for the management and organisation of labour (Wilkinson et al, 1992). To support these changes management needs to develop a participative management style based on a relationship of consensus and trust through increased autonomy and self-direction, if employees are to embrace these organisational goals (Wilkinson, 1994). Therefore, central to the success of TQM is the management of the organisation's human resources (Hill, 1995; Tuckman, 1995; Legge, 1995; Wilkinson et al, 1998). Underlying this is the emphasis on utilising labour to its full capacity through the development of policies which focus on developing high commitment, quality and flexibility (Guest, 1991; Storey, 1991). Of particular importance is the opportunity to develop the type of work patterns and practices required (Guest, 1991). Thus as Tuckman (1995) notes, only with a fundamental review of work patterns and practices can organisations achieve competitive advantage through quality. These changes in work patterns are required to remove the practices that restrict productivity and limit flexibility (Hill, 1991; Wilkinson, & Wilmott, 1996; Wilkinson, Godfrey & Marchington, 1997;) and accord with the emergence of the flexible patterns of work and organisational flexibility (Hill, 1991).

2.8.2 Linking Organisational Performance to World Best Practice

The increasing move towards a globalised economy has been a catalyst in organisations seeking to establish and maintain a competitive position in an increasingly deregulated domestic and international marketplace. In this context, the concept of 'World Best Practice' has become a key aspect in the restructuring and reforming of organisations (Carnegie & Butlin, 1993) as it

provides a reference point or standard (Kruithof & Ryall, 1994; Voehl, Jackson & Ashton, 1994). At a general level the process is defined in terms of organisational benchmarks:

The pursuit of best practice is the pursuit of world class performance. Best practice is the way in which the most successful organisations in the world manage and organise their operations. It is a moving target. As the leading organisations continue to improve the 'best practice' goal posts are constantly moving (DIR, 1994:2).

As Morris notes "best practice appears to have germinated in the 1980s as a response to Japanese manufacturing" (1996:18). As Ahmed and Rafiq (1998: 226) have identified, the Japanese are generally credited with developing the concept through their practice of sending managers to visit a wide range of companies as a way to understand and learn from good management practices. Central to the development of best practice is the concept of continuous improvement (ABPDP, 1994), or as often described, best practice is a race without a finish line (Davis, 1995). The central objective of best practice is to achieve world class outcomes on a variety of key criteria including quality, service, flexibility, innovation, cost and competitiveness (Lansbury, 1994). Underpinning the concept of best practice is the co-operation and commitment of management and employees to strategies of continual improvement, focused on eliminating performance gaps (Rimmer et al, 1996; Carnegie, 1994). As Thiagarajan and Zairi (1997) identify:

The critical importance of employees' involvement in the quality process of an organisation is based on the belief that the best process innovation ideas come from the people actually doing the job. The quality reputation of Japanese companies is mainly credited to their great success in this area (p. 273).

In order to develop this culture of continual improvement, Pappas et al (1990) argue that best practice requires the development of a new workplace culture in which change is natural and continuous. The development of this 'new' workplace culture, requires techniques to assess and compare organisational performance criteria. The key concept in the development of best practice has been the concept of benchmarking. Zairi (1994:11) describes the process of benchmarking as a means of continually identifying and then emulating the best as a way of introducing change to achieve superior performance. Benchmarking directs organisations to look outwards and evaluate their effectiveness with the best in that particular field (Pryor, 1989). Benchmarking has been defined by Hilmer (1991) as:

..... measuring and comparing how well an enterprise performs and carries out each activity in its business system in comparison to other enterprises which are actual or potential competitors internationally, or even in comparison to top performers carrying out similar activities in another industry, and using such comparisons as a critical input in triggering and sustaining improvements (p.168).

Whilst the concept of benchmarking has its origins in Japan (Oppenheim, 1991) it gained prominence outside Japan during the 1980s, particularly through its adoption by major US corporations and the prestigious Baldrige Quality Awards. However, as Macneil et al, (1994) point out :

[Benchmarking].....requires a workplace culture that must be carefully nurtured. This culture must be organisation-wide - informing and motivating the bottom as well as the top of business. Organisations have to be redesigned to get this culture (p.10).

The key feature of benchmarking is that not only does it identify gaps or shortfalls in performance, it can also identify problems or non-competitive aspects of the organisation, thus providing a form of internal audit for the organisation. As Ahmed and Rafiq (1998) explain:

Implicit within the benchmarking paradigm is the notion of the gap analysis, namely the difference between the organisation and a best practice company or the specific stated aim. Comparisons made within benchmarking are often about understanding the gap. Making comparisons against the best or stated aims allows companies to assess the nature of the leap that they have to make in order to catch or surpass world class competitors (p. 236).

The focus is therefore on increased resource utilisation, quality enhancement and cost reduction which complements TQM and flexible work practices (Macneil et al, 1994; Morris, 1996). Implicit in the philosophy of best practice is a culture of continuous improvement in the context of a dynamic and changing environment. As Macneil et al (1994) note: "All benchmarking models include a recalibration stage in which performance goals are reset because of such changes. Thus the cycle of improvement continues" (p.16). As noted, benchmarking is a moving target, as 'best in class' organisations continually review their processes and procedures to maintain their competitive advantage (Davies, 1995). As Zairi and Hutton (1995) state:

The links between total quality and benchmarking are therefore obvious - establishing processes and objectives based upon an industry best practice that result in better meeting internal and external customer requirements. Benchmarking is stimulated by an organisation's drive to accelerate the cycle of continuous

improvement, and to add an external perspective to their total quality culture (p. 35).

A key aspect of the benchmarking process is that organisations used as benchmarks do not necessarily have to be a competitor or indeed in the same industry. As noted above, it is the process or product that is the focus. The heterogeneous approach to benchmarking is reflected in a review of the literature (below), which indicates a variety of benchmarking practice that can be used individually or in association.

Benchmarking is a key element in organisations adopting best international practices and thus competitive advantage (Cook, 1993; Macneil et al, 1993, 1994). To develop and maintain these practices organisations have increasingly looked beyond the limits of the organisation. The evolution of close ties with other organisations (buyers and in particular suppliers) highlighted in the Japanese model (Kumazawa & Yamada, 1989; Turnbull 1991) and adopted in the flexible firm model, facilitates the development and dissemination of best practice beyond the boundaries of the core organisation (Tuckman, 1995; Starr, 1991; Dean & Evans, 1994). As Zairi and Hutton (1995) point out:

Benchmarking adds an external perspective to a total quality organisation..... The integration of total quality management, performance measurement and benchmarking comprises the essential elements of competitiveness. It establishes a culture of continuous improvements, provides external perspectives, and encourages the release of the energies and creativity of an organisation's employees (p. 36).

Table 2.4 Benchmarking Varieties and Types

- *Internal benchmarking*, focuses on comparisons between key operations and systems within a business (Macneil et al, 1994).
- *External benchmarking*, comparison of similar key operations and systems with external organisation (Ahmed & Rafiq, 1998).
- *Competitive benchmarking*, comparison of similar key operations and systems with those of designated competitors in the same product markets (Macneil et al, 1994; Walton, 1999).
- *Industry benchmarking*, comparisons are made with a broader range of associates, which as well as including competitors may also include suppliers, distributors and customers (Ahmed & Rafiq, 1998).
- *Process benchmarking*, involves the comparisons of work processes and systems between businesses in different industries that share common 'processes' such as purchasing, (Macneil et al, 1994).
- *Generic benchmarking or best practice benchmarking*, is a comparison of particular aspects of the organisation against what might be considered the best in class. The focus here is on excellence irrespective of organisation or industry sector (Ahmed & Rafiq, 1998; Walton, 1999).
- *Performance benchmarking*, focuses on performance attributes which can include price, availability, reliability etc (Ahmed & Rafiq, 1998).
- *Strategic benchmarking*, as the name suggests involves benchmarking at the strategic level of the organisation and generally includes a comparisons of competitors' business strategies as a way of identifying key success factors (Ahmed & Rafiq, 1998; Walton, 1999).
- *Global benchmarking*, is closely linked to strategic and generic benchmarking. Global benchmarking is benchmarking conducted on world-wide scale (Walton, 1999). However, rather than just product or systems focus, global benchmarking includes issues of international trade, culture and practices.

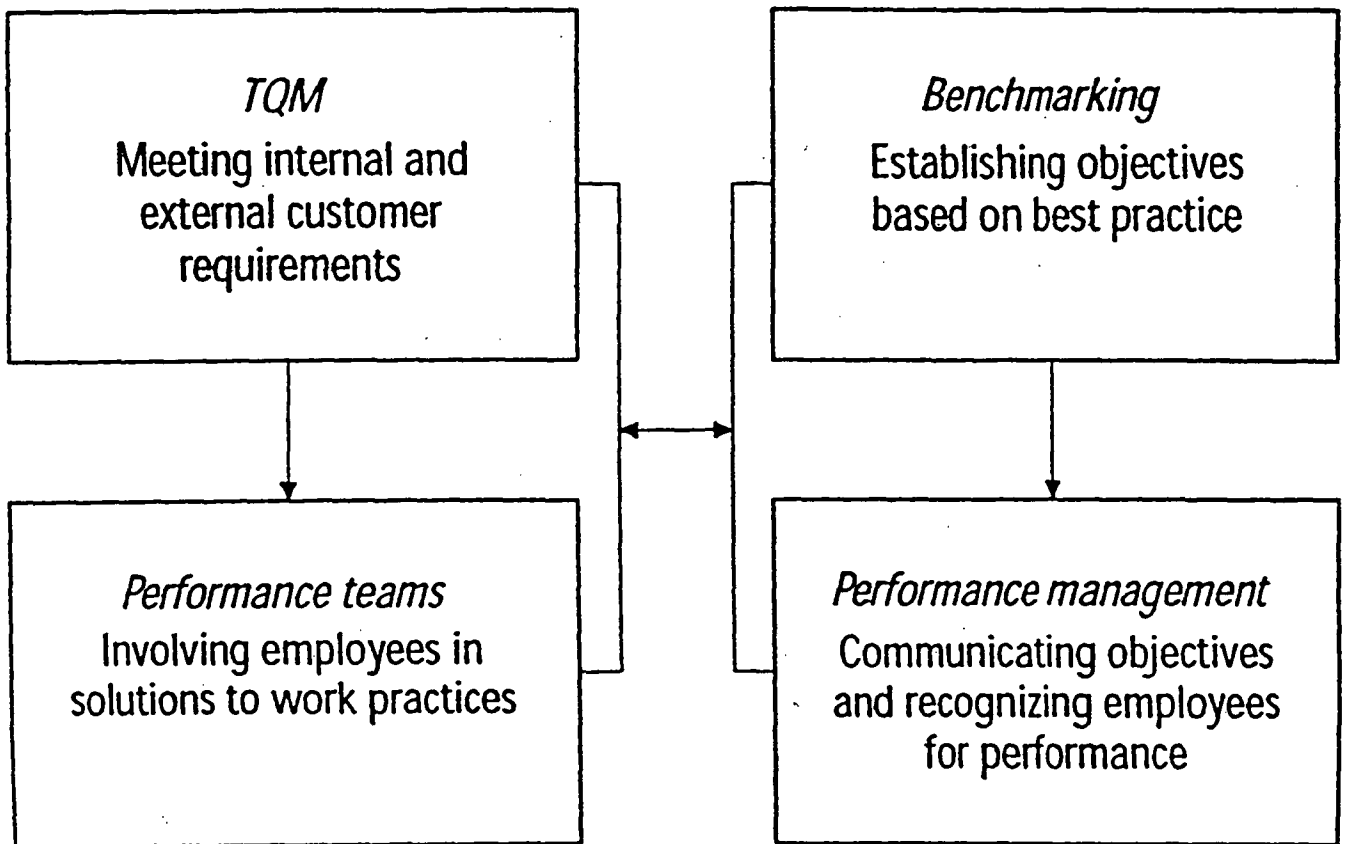
As Figures 2.5 and 2.6 illustrate below, benchmarking combined with TQM integrates elements from both the external and internal environment. This is of importance because it provides context for the organisation when it sets goals (Camp, 1992; McNair & Leibfried, 1992) As Zairi and Hutton (1995:39) explain the importance of linking TQM and benchmarking is “It moves a total quality organization from continuous improvement to continuous learning”.

The development of a quality regulatory framework through the International Organisation for Standardisation based in Geneva provides a co-ordinated internationally accepted quality system standard (Kruithof & Ryall, 1994). The benchmark standards developed by the International Organisation for Standardisation are known as ISO 9000 (see Appendix 1 for more detail). As Adanur and Allen (1995) identify:

The ISO 9000 series is not product specific, but instead is a generic quality management system model that supplements specification. It is a set of international standards designed to be used for establishing and maintaining quality management and systems for company use or to satisfy outside contracts (pp. 41-42).

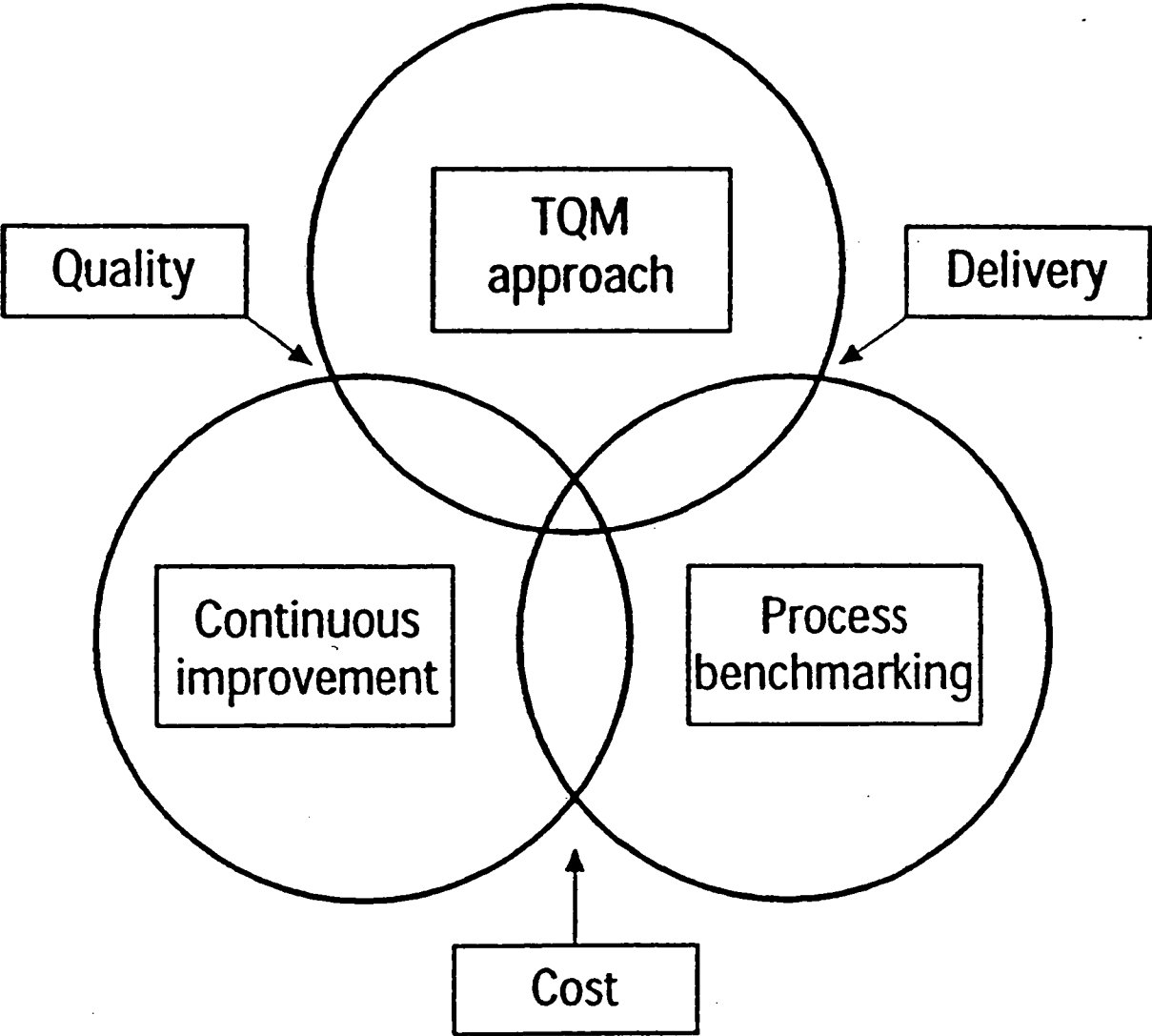
The ISO series allows for the harmonisation of standards by providing a benchmark or reference for sub-contractors and suppliers and a guarantee to the core organisation of minimised variance and adherence to specification (Voehl et al, 1994). Such a process facilitates a closer match between suppliers and customers and allows the core enterprise to influence directly the development and management of quality in these organisations (Bradley, 1994; Tuckman, 1995).

Figure 2.5 The Links Between Benchmarking and TQM



Source: Zairi and Hutton 1995:39

Figure 2.6 The Integration of TQM, Performance, Measurement and Benchmarking.



Source: Zairi and Hutton 1995:39

It therefore allows for the number of suppliers to be reduced because of the likelihood of minimal variations (Adanur & Allen, 1995). Such a relationship has mutual benefits. Indeed, the early involvement of suppliers in the development of new products can create a two-way information flow on quality and cost-effective development, further enhancing enterprise efficiency and therefore performance (Dean & Evans, 1994; Starr, 1991). Fundamental to this is a process of open communication, co-operation, commitment and compliance from management, trade unions and employees (Dertiuozos, Lester & Solow, 1989; Lansbury, 1994). As Adanur and Allen (1995) conclude:

ISO 9000 is seen by many industries as the premier quality system which is very important for doing business..... ISO 9000 quality systems become a great marketing tool for a company. To be ISO certified in an industry that has large international sales regions is imperative. Many companies' buyers look at ISO certified firms having already taken care of quality..... The fact that firms will have to be ISO certified is going to become more and more relevant as a prerequisite for doing business internationally (pp. 51-52).

2.9 Unresolved Issues in the Research Literature

The analysis of the flexible firm model and associated work patterns in this literature review raises a number of issues that point to gaps in the research to date. Firstly, whilst the model is presented as a way of increasing flexibility through a more efficient use of (human) resources, little research has been undertaken at the level of the enterprise to assess these factors. Secondly, the literature largely assumes the development of new organisational structures as systematic and unproblematic. This change in structure impinges on all levels

of the organisation and therefore on institutional structures and relationships. The literature perceives this change to be uniformly accepted, with little consideration for the political and organisational implications of this process.

Thirdly, the literature assumes that the development of these new patterns of work will provide increased efficiency and effectiveness through increasing competitive advantage. Human Capital theory supports the development of a highly-skilled core workforce (Becker, 1964; Smith, 1992), and the 'hard' aspects of human resource management support the use of the external labour market to reduce fixed (non-productive) labour costs (Fombrun, Tichy & Devanna, 1984; Legge, 1995). However, little attention has been paid in the literature to assessing these changes at an organisational level, including associated practices to facilitate the development of competitive advantage in an industry that relies on quality and reliability.

These issues and areas of investigations define this research as an exploratory study in the development of flexible patterns of work. The aim of the study is to explore the development of the flexible firm model and associated techniques, policies and practices through a case study of an organisation being re-positioned within a dynamic environment. This will be the focus of the following chapters.

2.10 Summary

This literature review of emerging patterns of work highlights the wide, varied and extensive nature of the debate in this field. Despite this, the research has identified the integrative development of these work practices as a way to respond to the increasingly turbulent and competitive environment, as

significant in enhancing the effectiveness of an enterprise through more efficient utilisation of human resources.

The research which has emerged in this field of human resource management to enhance competitive advantage has been influenced by the success of Japanese organisations (and their transplant subsidiaries) in recent times (Kenney & Florida, 1988, 1993; Wood, 1989). The major construct developed in this area is the Institute of Manpower Studies' Core-Periphery or flexible firm model, which draws on many of the characteristics of Japanese-based organisations. Whilst the model has attracted wide attention and criticism, it has been acknowledged as a framework and a benchmark upon which organisations can draw to develop their own particular 'flexible firm' suited to localised products, markets and workforce (Atkinson, 1984; NEDO, 1986; Wood, 1989; Mathews, 1989; Badham & Mathews, 1989; Procter et al, 1994). What has also emerged from this review of the literature is the growing importance of international competitiveness as the global economy expands. In this context the issue of international standards of quality and competitiveness has seen the increasing use of techniques and practices associated with TQM, providing further impetus for the development of new patterns of work organisation.

CHAPTER 3

AUSTRALIAN LABOUR MARKET POLICIES AND WORKPLACE REFORM

3.1 Chapter Objectives

The objectives of this chapter are firstly, to outline and define the basic framework that has underpinned the development of work patterns and practices in Australia for most of the last century. Secondly, why, following the economic crises of the 1970s, these structures made Australia less able than many other advanced industrial economies to cope with the new and increasingly competitive economic environment. Thirdly, it will investigate how workplace reform has been undertaken in respect to these challenges.

3.2 An Overview of Australian Economic and Labour Market Policies (1901-1973)

The development of industrial policy in Australia has its origins in Federation in 1901. However, the struggle between the two major economic perspectives of protectionism (intervention) and free-trade (market forces) in Australia can be traced back to the colonial tariff policies of the 1850s (Anderson & Garnaut, 1986). With Federation, the ‘protectionist’ rather than the ‘free-trade’ arguments were more influential in developing Australia’s industry policy (Costa & Duffy, 1991; Kelly, 1992). Underpinning the arguments of the protectionists were policies to encourage and develop national economic growth through the defence of fledgling industries (particularly manufacturing),

maintaining employment and the development of a balanced, high wage and self-sufficient economy (Hagan, 1989; Costa & Easson, 1991). As Anderson and Garnaut (1986) note: “Tariff protection for manufacturing was advocated as a way to increase the demand for labour” (p.160).

From the first manufacturing tariffs² in 1907, tariff barriers expanded across Australian industry. In 1921, the Tariff Board was established to examine, regulate and manage tariff protection (Rattigan, 1986). However, as Butlin, Barnard and Pincus (1982), note: “(The Tariff Board) appears to have accepted most clauses, without considering closely the case of need or the efficiency of the industry” (p.89). The only critical assessment of tariff policy came from a federal government committee on the subject (The Australian Tariff - An Economic Inquiry 1929) chaired by J.B. Brigden. Brigden was seen as an astute choice because he recognised the dangers of over-protection of industry (Capling & Galligan, 1992). The Brigden Report (as it became known) warned that tariffs had reached their economic limit (Kelly, 1992). However, the committee gave tacit approval to a continuation of these policies on the grounds of ‘general welfare’, which was defined in terms of standard of living (Capling & Galligan, 1992). The committee also noted that tariff protection had increased the demand for labour, thus supporting a larger population (Jackson et al, 1975; Quiggin, 1996).

The characteristic of tariff policies over the next five decades was a defensive strategy of continual increase across all industries in response to economic volatility. Indeed, during the Great Depression Prime Minister Scullion raised tariffs seven times in 1929 alone (Capling & Galligan, 1992). After World War II tariff barriers were combined with import licenses to further restrict imports and entrench the ‘New Protectionist’ philosophy as central to Australian

² A tariff is a tax levied on imported goods but not on those made locally. The main justification in Australia has been the protection of industries and to maintain high levels of employment. See Horridge, 1988.

industrial development (Anderson & Garnaut, 1986). These policy developments were in contrast to trends developing on a multi-lateral level through the General Agreements on Tariff and Trade (GATT) negotiations during the 1950s and 1960s. A key objective of these trade negotiations was the reduction of tariff barriers, a process with which Australia, through its protectionist philosophy, was clearly out of step. As Anderson and Garnaut (1986) point out:

As a result of that abstention, the manufacturing tariff differences between Australia and other industrial countries widened during the two decades to the mid-1970s by which time Australia and New Zealand had by far the highest tariffs among industrialised countries (pp.161-62).

During the initial post-war period, these policies were well suited to the structure of the Australian economy with its focus on primary industry and a boom in the price of raw materials (Capling & Galligan, 1992). Had protectionism been removed once manufacturing had reached sustainable levels, these policies could have been seen as an integral step in the development of a strong industry base (Glezer, 1982). However, in the long-term, industry (particularly manufacturing) became less competitive as the maintenance of this framework reduced the capacity of Australian industry to react to market conditions. This had the effect of insulating domestic industry from change as it only required (and encouraged) an organisation to be as efficient as its domestic competition (Gruen, 1985; Costa & Easson, 1991; Bell, 1993).

3.2.1. Wage Determination 1907 -1975

Industry protection was only one aspect of the protectionist (introspective) framework developed by successive Australian federal governments. The development of the wage arbitration system in alliance with capital protectionism provided a mechanism for the benefits of industry protection to be passed on to labour. As Brigden (1925:29) identified “The protection of manufacturers [sic] and of labour marches in one indissoluble unity”. The policy was also instrumental in developing and consolidating the Federation as it entrenched benefits (and sectional interests) of both capital and labour across Australia as Kelly (1992) points out:

It was a device that tied both capital and labour to the post-Federation consensus. The Commonwealth Arbitration Court, later the Conciliation and Arbitration Commission, then the Industrial Relations Commission, became the forum for its entrenchment (p.7).

The system of wage determination was unique in that wage rates were not determined by market forces or an employer’s ability to pay but by what was deemed to be a ‘fair and reasonable wage’ (Deery, Plowman & Walsh, 1997). The development of what was considered a fair and equitable ‘living’ wage was determined in the Commonwealth Arbitration Court in the landmark test case - *The Sunshine Harvester Judgment* in 1907. In this case, Justice Higgins of the Arbitration Court, under the excise tariff legislation, determined a fair and equitable minimum family wage based on the requirements of an average family with one wage earner (Gardner & Palmer, 1996).

What ensured the binding of capital and labour under this judgement was that under the ‘New Protection’ policy, tariff protection was conditional on the

adherence to a 'fair and equitable' wage, determined by the courts (Quiggin, 1996). This judgement thus established a distinctly Australian pattern of centralised wage determination (Horridge, 1988). It also ensured that tariff protection and wage determination were inseparable. As Quiggin (1996:19) notes: "..... the ideas of New Protection were effectively implemented in the famous Harvester judgement". This case also strongly influenced and guided the Brigden Committee judgements more than twenty years later, as Quiggin (1996) points out:

The ideas of the New Protection were given substance by the report of the Brigden Committee (1929). The committee argued that, while protection yielded a lower per capita income than would free trade, it increased the demand for labour, and therefore the size of the population that could be supported at a given real wage, such as that laid down in the Harvester judgement. More generally, this point may be restated as saying that protection of a labour-intensive industry leads to an increase in the equilibrium real wage (p.20).

In undertaking to determine wage rates the Australian Conciliation and Arbitration Court (now the Australian Industrial Relations Commission) through industrial awards³ became the regulator of wages, through what has become known as the National Wage Case. As Hill, Howard & Lansbury, (1982) explain:

³ The Industrial awards system is unique to Australia. They are negotiated between the parties (trade unions and employers) and are legally binding documents specifying terms and conditions of employment. For a more detailed account see Curtain and Mathews, 1990. Approximately 59 per cent of employees are covered by minimum wage awards set by either the Federal Industrial Relations Commission or by state wage tribunals. (Deery, Plowman, Walsh & Brown, 2001).

In the National Wage Case, the Commission considers the entire award structure and decides whether there are factors within the economy which suggest that wages as a whole should be varied. The Commission does not have the constitutional power to initiate and undertake such a review, so the National Wage Case must be placed in the context of dispute settlement. Labour and management, via representative organisations, contrive a dispute, within the meaning of the Conciliation and Arbitration Act, over critical elements of the award wage structure, and the Commission hears this synthetic dispute and determines what, if any, variation in award wages is appropriate (p.29).

The wage fixation system was enshrined in the Australian regulatory framework and remained the central wage fixing mechanism until 1967, when over-award payments had to a large extent marginalised this process (Hill et al, 1982). In direct response to this, 'Wage Indexation' was introduced. Wage Indexation was initially conceived as part of an incomes policy whereby both wage and non-wage forms of income would be regulated (Deery & Plowman, 1991). As Gardner and Palmer (1992) point out: "The system, introduced and modified over time, comprised an integrated set of wage-fixing principles, the core of which was the regular adjustment of wages to change, in a price index" (p.332). Wage indexation allowed the Commission to regain control over regulating wage determination. As with the philosophy underpinning the National Wage Case, the system was geared to provide the highest wages the economy could afford (Costa & Duffy, 1991; Deery & Plowman, 1991; Quiggin, 1996). However, as Anderson and Garnaut (1986) note, this further entrenched inefficiency within the system:

This approach was not applied to costs associated with technical inefficiency. The effect of this policy on a relatively labour-scarce, high-wage economy was, of course, to protect the most labour intense manufacturing industries (p.49).

However, the post war period to 1975 was characterised by stable economic conditions and market expansion. In this environment, these (protectionist) policies artificially sustained the Australian economy, leaving it ill-prepared for change in economic conditions (Quiggin, 1996). An additional weakness which developed within the highly regulated protectionist system was that both management and trade unions pursued policies, strategies and goals based on a culture and background unimpeded by market force regulation. As Macfarlane (1986) comments:

The legacy of the interventionist policies of previous governments, with their attempts to control markets in the pursuit of import replacement, is a very serious one. Management retained a “product orientation” rather than a “market orientation”. That is, they produced goods with the expectation - which became for some an entitlement - that they would have a market for those goods. Unions won terms and conditions which would not have been compatible with the more competitive environment, and governments were less inclined than they might have been to consider competitive needs when pursuing regulatory and taxation policies in this relatively sheltered situation. (p.9).

With the advent of the oil shocks of the 1970s, and the subsequent economic instability, the structural environment in place in Australia both at a macro and micro economic level was exceptionally vulnerable to the new ‘post-Keynesian’ economic environment. The new economic environment was characterised by

economic instability, deregulation and international competition. As Costa and Duffy (1991) conclude:

In summary, our history and particularly our protection and industrial relations policies have taken Australia out of the fastest area of international economic growth - high quality, high technology, high value added manufacturing industry (p.73).

3.2.2 Assessing Australia's Performance

By the mid-1970s, of advanced western market economies, Australia had the second (after New Zealand) most regulated economy in the world. This sustained period of protectionism underpinning the economic development of Australia had developed at the cost of economic and industrial competitiveness (Costa & Duffy, 1991). As Table 3.1 indicates, during the period of the 'long-boom' (1945-1970) Australia's competitiveness had slowly but consistently declined against other OECD countries on a variety of performance indicators. Surprisingly this table has the US and the UK below Australia in both periods. However, this is more indicative of the mature modern and diverse advanced industrial economy both the US and UK had become. In contrast the Australian economy had been superficially supported by the demand in primary goods, which eased the pressure on questioning protectionist strategies that supported a stagnant manufacturing sector. Had Australia liberalised protectionist policies during this period the growth rate would potentially have been in the upper quartile of advanced western market economies (Costa & Duffy, 1991).

In addition, Australia slipped from 5th most productive (as measured in output per head) nation in the OECD in 1950 to 13th by 1977 (see Table 3.2). Annual per capita growth records show that Australia consistently featured in the bottom one-third. In terms of GDP, Australia was also well below average, as Table 3.3 illustrates.

**Table 3.1 Percentage Annual Growth Rates of Real Output
(Total and per Head)**

Country	Period	Growth of Real Output	Country	Growth of Real Output
Israel	1950-70	10.3	Japan	8.2
Japan	1953-71	10.0	Israel	5.7
Germany*	1950-71	6.1	Germany*	5.1
Italy	1951-70	5.5	Italy	4.7
France	1950-70	5.0	France	3.9
Australia	1948-72	4.7	Belgium	3.5
Canada	1950-71	4.2	Norway	3.5
Norway	1950-71	4.2	Denmark	3.3
Denmark	1950-70	4.0	Canada	2.6
Belgium	1950-71	3.6	Australia	2.5
USA	1950-71	3.5	UK	2.2
UK	1950-71	2.7	USA	2.1

* Denotes West Germany

Source: Costa and Duffy (1991:64)

Table 3.2 Average Annual Per Capita Real GDP Growth Rate
(in percentage)

1960-1982		1960-1968		1968-1973		1973-1982	
NZ	1.3	NZ	1.2	USA	2.2	NZ	0.36
UK	1.8	Luxembourg	2.2	UK	2.8	Switzerland	0.27
Switzerland	1.8	Iceland	2.4	Turkey	2.9	Luxembourg	0.36
USA	2.0	UK	2.5	Norway	3.3	UK	0.77
Luxembourg	2.2	Switzerland	2.7	Sweden	3.3	USA	0.80
Australia	2.3	Australia	3.0	Denmark	3.4	Netherlands	0.80
Netherlands	2.5	Turkey	3.2	NZ	3.4	Australia	0.92
Sweden	2.5	USA	3.2	Switzerland	3.5	Spain	1.04
Canada	2.7	Germany*	3.3	Australia	3.5	Canada	1.10
Denmark	2.7	Finland	3.3	Ireland	3.7	Sweden	1.13
Germany	2.8	Netherlands	3.5	OECD Ave	3.7	OECD Ave	1.31
OECD Ave	2.8	Norway	3.6	Germany	4.0	Denmark	1.44
Ireland	3.0	Sweden	3.6	Italy	4.0	Greece	1.61
Iceland	3.0	Austria	3.7	Netherlands	4.2	Italy	1.76
Turkey	3.1	Canada	3.7	Canada	4.3	Germany	1.77
Norway	3.4	Denmark	3.8	France	5.0	Iceland	1.77
Belgium	3.4	Ireland	3.9	Austria	5.4	Belgium	1.82
France	3.4	Belgium	3.9	Belgium	5.4	Portugal	1.84
Italy	3.4	OECD Ave	3.9	Luxembourg	5.5	France	1.96
Austria	3.5	France	4.2	Spain	5.8	Iceland	2.03
Finland	3.6	Italy	5.0	Iceland	6.4	Finland	2.32
Spain	4.0	Spain	6.4	Finland	6.5	Austria	2.36
Portugal	4.8	Portugal	6.5	Japan	7.3	Japan	2.81
Greece	4.8	Greece	6.7	Portugal	7.7	Turkey	3.24
Japan	6.2	Japan	9.4	Greece	7.8	Norway	3.27

Note: Germany is identified here as West Germany

Source: Gruen (1985:10)

Table 3.3 Average Annual Real GDP Per Head of Total Labour Force
(in percentage)

1960-1982		1960-1968		1968-1973		1973-1982	
NZ	0.7	NZ	0.8	USA	0.9	NZ	-0.6
USA	1.0	Australia	2.2	Canada	2.4	USA	-0.5
Canada	1.4	Iceland	2.3	Australia	2.7	Canada	-0.5
UK	1.7	UK	2.7	NZ	2.8	Netherlands	-0.3
Australia	1.7	USA	2.9	UK	2.9	Luxembourg	0.1
Iceland	2.1	Switzerland	2.9	Sweden	3.1	UK	0.3
Netherlands	2.2	Canada	2.9	Denmark	3.3	Sweden	0.4
Sweden	2.2	Denmark	3.2	Switzerland	3.4	Iceland	0.5
Switzerland	2.2	Luxembourg	3.2	OECD Ave	3.5	Australia	0.6
OECD Ave	2.6	Netherlands	3.6	Turkey	3.6	OECD Ave	0.8
Belgium	3.0	Finland	3.8	Germany*	4.2	Switzerland	0.8
Germany	3.1	Norway	3.8	France	4.6	Italy	1.1
Ireland	3.4	Sweden	3.9	Belgium	4.7	Greece	1.2
Finland	3.4	Belgium	4.0	Iceland	4.7	Belgium	1.3
France	3.6	Ireland	4.1	Netherlands	4.7	Germany	1.6
Italy	3.8	OECD Ave	4.2	Italy	4.7	France	1.7
Austria	3.8	Germany*	4.3	Ireland	4.8	Norway	1.8
Turkey	4.0	Turkey	4.8	Austria	5.3	Finland	1.8
Spain	4.5	France	4.9	Spain	5.8	Spain	1.8
Greece	5.5	Austria	5.0	Finland	6.2	Ireland	1.9
Japan	6.1	Portugal	6.1	Portugal	7.3	Austria	2.0
		Italy	6.3	Japan	7.8	Japan	2.9
		Spain	6.8	Greece	8.7	Turkey	3.7
		Greece	8.4				
		Japan	9.0				
<u>Omitted</u>				<u>Omitted</u>		<u>Omitted</u>	
Denmark				Luxembourg		Denmark	
Luxembourg				Norway		Portugal	
Norway							
Portugal							

Note Germany is identified here as West Germany

Source: Gruen (1985:12)

The economic decline of Australian industry is further highlighted by Hughes (1989:xix), who points out that: "Australia is the only industrial country that has not increased its proportion of merchandise export to GDP during the last 30 years". Thus while protectionist policies encouraged the development of domestic industries, what became apparent at the end of the 'long-boom' was that the retention of these policies as a defensive strategy had significantly hampered the growth of cost-effective export-orientated industries (Gruen & Grattan, 1993). As Costa and Duffy (1991) note: "Tariffs effectively tied productive rewards to failure, the worse the performance, the higher the tariff" (p.44). Thus protection reduced competition and flexibility and sheltered some industries, while becoming a form of tax on export-orientated industries - in other words a form of "built in arthritis" (Costa & Duffy, 1991:44).

The work patterns and practices developed in Australia under this protectionist economic model reflected the 'arthritic' state of the country's industry. With the end of the 'long-boom' and the emergence of a post-Keynesian world economy of economic instability and increasing international competition, Australia was in a poor structural and economic position to respond to this new environment (Costa & Duffy, 1991; Gruen & Grattan, 1993). What was required was a complete review and reform of the structures and systems which had characterised Australian industry policy since Federation in 1901, in order for Australia to compete internationally (Sloan, 1993).

3.3 Restructuring and Reforming Australian Economic Policies

The decline in the competitiveness of Australian industry and particularly manufacturing output, identified a need to review the relationship between protectionist economic policies and the broad national interest. In 1972, the

then recently elected Whitlam federal Labor government appointed the “Committee to Advise on Policies for Manufacturing Industries”, which became more commonly known as the ‘Jackson Committee’ after the Committee Chairman R.G Jackson. The Jackson Committee revealed Australian industry was in a “deep-seated and long standing malaise” (1975:1). Whilst the report identified that the cause of the crises in Australian industry was indeed the world recession, it did emphasise that “When it passes, the malaise of manufacturing will still be there”(1975:1). The committee noted that the protectionist barriers designed to create Australian industry had been a major factor contributing to productivity rates below comparable international competitors (Jackson et al, 1975). The report highlighted the rapid deterioration in the competitiveness of Australian manufacturing industry (from an already low base), and the over-reliance on primary and low-value-added exports. It also noted the these goods were being produced by an alienated and frustrated workforce which was reflected in “industrial unrest, absenteeism, high turnover and indifference to quality... and a poorly trained management force” (Jackson et al, 1975:2).

The ‘Jackson Report’ was a scathing indictment of Australia’s manufacturing industry, industrial relations and performance and the policies of successive federal governments (Costa & Duffy, 1991). In order to reverse these damaging trends, the Jackson Report proposed immediate restructuring of macro-economic policy in the area of industry protection. In particular, the committee argued for lower tariffs to improve the competitiveness of the Australian economy, although it recommended that tariff reductions should be gradual (Jackson et al, 1975:175).

The significance of this proposal was a reversal of a trend which had underpinned successive Australian governments’ industry policies since Federation (Gruen & Grattan, 1993). Whilst by no means uniform in focus or

implementation, tariff reduction across Australian industry was enshrined in successive federal government policies from this period. As Costa and Easson (1991) note:

The tariff reductions began by the Whitlam Labor government culminated in the Hawke Labor government's decision in its 12 March 1991 Industry Statements to phase out virtually all tariff protection by the end of the 1990s (p.13).

The Whitlam federal Labour government replaced the Tariff Board with the Industries Assistance Commission (IAC) (later the Industries Commission [IC]), which has become a major advocate of structural and economic reform (Quiggin, 1996). The catalyst for the reforming of economic policy was the need to create an economic environment conducive to developing international standards of organisational competitiveness (which meant breaking with the protectionist model) and bringing Australia into line with other advanced western market economies (Garnaut, 1991).

3.3.1 The Reconstruction of Wage Determination

The second platform of 'New Protection' also came under pressure as wage increases outstripped inflation after the first series of economic shocks in the early 1970s. From April 1975, indexation became quarterly to constrain wage costs. Wage indexation was introduced as the central mechanism for wage determination under the Fraser federal Coalition government in 1975. However, the system remained under pressure from "work value anomalies and inequities" (Gardner & Palmer, 1992: 334) and by 1981 wage indexation was abandoned.

The incoming Hawke federal Labor government's Prices and Incomes Accord⁴ - 'The Accord' in 1983 with the trade union movement - provided the framework for restructuring at a micro-economic level. While essentially a reworking of the wage indexation process, the 'Accord' provided an adaptable platform to develop a more flexible and closer relationship between wage policy and productivity. The Accord (1983-1996) was an anti-inflationary broad-based national incomes policy modelled on the British social contract of the late 1970s. However, through its various stages over its 13 year lifespan, it provided the framework for negotiating progressive economic and structural reforms to enhance economic performance.

3.3.2 The New Workplace Culture

The continuing deterioration in Australia's competitiveness during the 1980s became the catalyst for the next stage of the reformation process, the systematic dismantling of the centralised framework of industrial regulation (Rimmer & Zappala, 1988; Morris, 1996). During the late-1980s, a set of policies emerged as part of the process to provide the framework for Australian organisations to compete more effectively in the developing global economy. The central feature of these reforms was micro-economic restructuring, and in particular the deregulation of the Australian labour market. The most influential policy document to emerge during this period was *Australia Reconstructed* (ACTU/TDC, 1987)⁵. The report, encompassing the findings of a tripartite mission of government, business and trade unions to Europe, drew on the more

⁴ The Prices and Incomes Accord tied the trade union movement to a policy of wage restraint. In return the trade union movement had significant involvement in government economic development (Mathews, 1989).

⁵ *Australia Reconstructed*, a report by the mission members of the Australian Council of Trade Unions (ACTU) and the Trade Development Council (TDC), was published in July 1987 to widen economic strategy and debate. The report came as a result of a fact-finding mission to Northern Europe. *Australia Reconstructed* is primarily concerned with the manufacturing sector and argued for an active and strategic policy to reduce Australian reliance on primary industry (Thompson, 1988:87-88).

vibrant and economically strong economies of Western Europe as models for framing Australia's industrial restructuring (Emery, 1996).

Australia Reconstructed covered a variety of aspects of the Australian economy. Several of the key recommendations were contained in a section devoted to workplace reform at the 'Company and Plant level'. In particular:

- management and work practices to improve the efficiency of the enterprise;
- training for the fullest possible development of the labour force's capacity to make a contribution to production;
- industrial democracy structures and work organisation.

In reflecting on the *Australia Reconstructed* document, Rimmer and Zappala (1988) comment:

Australia Reconstructed..... had a substantial impact in terms of establishing the need for greater labour market flexibility. This encompassed improvements in the external labour market (through up-graded government assisted training policies); raising workplace 'productivity consciousness' through industrial democracy and more positive union involvement in industry (p. 567).

The *Australia Reconstructed* blueprint provided a guide for the fundamental shift in the relationship between labour, capital and productivity in Australia, with the focus of reform moving to the enterprise level (Burgess, 1989). Evans (1991) describes this fundamental shift in the relationship between management and labour in terms of a 'New Workplace Culture':

...the 'New Workplace Culture', is a state of mind and a set of ways of organising in the workplace that is sharply different from the traditions of Henry Ford and the Second Industrial Revolution early this century. Features of the New Workplace Culture are: flatter and often team-based organisational structures with more quality responsibility given to operators; multi-skilling and continuous skill development; continual attention to improvement of quality and productivity; and sharing of broad common goals among management and employees (p.24).

What was significant in these policy statements was that micro-economic reform and specifically the areas of "industrial relations and the labour regulation were prerequisites for economic progress" (Morris, 1996:12). This was a fundamental shift from the policies of macro-economic adjustment which had characterised the previous seven decades since Federation.

3.4 Micro-economic Reform in Australia

Australia's economic performance continued to deteriorate through the 1980s, and the reliance on and adjustment of macro-economic policies was no longer effective in substantially reversing this trend (Schedvin, 1987; Quiggin, 1996). "It then seemed natural to turn to the micro-economic 'fundamentals' and examine how well these are performing" (Forsyth, 1992:3). The actual focus of micro-economic reform is primarily the efficiency of production and getting the most from the available resources - be they human, physical or financial at the level of the enterprise (Forsyth, 1992). As the then federal treasurer pointed out:

Success in the overall adjustment process will come increasingly to depend on the extent to which individuals and enterprises

effectively compete in the international marketplace (Keating, 1987 cited in Forsyth, p.44).

In Australia, the structural changes to facilitate a micro-economic reform agenda had been initiated with the reduction of tariffs in the 1970s and financial deregulation in the mid-1980s. However, reform of the highly regulated labour market structures and processes had to a large extent remained unchanged since the Conciliation and Arbitration Act (1904) and the Harvester Judgement (1907). This was identified as a key issue in developing increasing competitiveness (Rimmer & Zappala, 1988; Quiggin, 1996). In this context, the Hawke federal Labor government through the vehicle of the Accord, embarked on a micro-economic reform agenda, focusing specifically on the labour market and industrial relations.

3.4.1 The Restructuring and Efficiency Principle

The continued deterioration in the Australian economy and international competitiveness drew unique consensus and recognition from all parties to the National Wage Case (employer representatives, trade unions and the federal government) in March 1987. All parties agreed that the centralised (macro-economic) policy of a wage-fixation should be abandoned in favour of a policy which encompassed industrial efficiency in the determination of wages (Fox, Howard & Pittard, 1995). This unique position of consensus derived from the increasing conflict between centralised wage fixing and economic reform (Quiggin, 1996). This consensus provided the support and opportunity to allow the Conciliation and Arbitration Commission (ACAC), to develop an innovative 'two-tier' wage system through the Accord. The first tier operated in the tradition of the former centralised wage-fixing system, in which a flat wage adjustment was uniformly granted. For the second-tier a wage increase of up to 4 per cent was available but had to be achieved through productivity trade-offs or cost savings through labour market reforms (Keenoy & Kelly, 1996). The

paradigm shift in this process was the move from a pure entitlement principle of wage adjustment to one requiring productivity off-sets (Niland, 1991; Forsyth, 1992). As Issac (1989) points out:

The object of such flexibility is to encourage faster productivity growth and lower unit costs in order to improve international competitiveness. For similar reasons, labour market flexibility has been a matter of concern in a number of different countries....
(p.51).

The initial focus of the micro-economic reform was the removal of excessive costs and restrictive work and management practices, whilst introducing elements of multi-skilling (Quiggin, 1996). The development of this framework was envisaged as the catalyst for enhanced industrial efficiency. For the workforce the opportunity for increased remuneration through skill enhancement incentives and improved career prospects completed the 'win-win' scenario (Deery et al, 1997). The key element in this policy was the development of labour flexibility, which had emerged as a major theme in workplace reform debates in the 1980s (Atkinson, 1984; Piore & Sabel, 1984; Rimmer & Zappala, 1988; Mathews, 1989).

Research by Rimmer and Zappala (1988) into the effects and influence of the second tier on labour market reforms identified the developing theme of 'flexibility' as a central aspect in the restructuring of work practices. The four defined forms of flexibility identified included numerical flexibility; functional flexibility; wage or financial flexibility; and procedural flexibility.⁶ Rimmer and Zappala (1988) found a significant improvement and diversity in the use of internal labour market strategies in Australia, with the most significant occurring in functional and procedural flexibility. In addition, they identified

⁶See chapter 2 for more details

that second-tier agreements produced genuine change in efficiency and competitive practices. A major feature of these changes was their accomplishment without a major shift in the organisation of work (Rimmer & Zappala, 1988).

3.4.2 The Structural Efficiency Principle - Award Restructuring

Because of the limited nature of the restructuring and efficiency principle, in 1988 the ACAC stated that its usefulness had been exhausted, but it had laid the foundation for further workplace reform (National Wage Case, 1988). This reform came as a new wage system linked to the reform of the industrial award system. Wage increases were to be paid in accordance with a new principle - Structural Efficiency - which came to be known as 'award restructuring'⁷ (Macken, 1989; Fox et al, 1995). As the Commission noted:

...award restructuring has the potential to generate significant productivity gains on a sustained basis..... It provides a mechanism for modernising our award structures, laying the basis for more flexible forms of work organisation and working arrangements, building better incentives into our awards for skill formation, and developing a more skilled, adaptable and motivated workforce (National Wage Case, 1988:20).

The focus of award restructuring was the development of a more highly-skilled workplace to contribute to increasing organisational efficiency and competitiveness. The scope of changes in award restructuring included the development of career paths and multi-skilling with a focus on enhancing flexibility (National Wage Case, 1988; Rimmer & Verevis, 1990). This entailed the development of new classification structures to provide a mechanism for a

⁷ Award Restructuring involves a number of measures to alleviate problems such as the removal of obsolete job classifications, the broadbanding of several narrow classifications, the establishment and defining of links between training, skills and wages and ensuring work arrangements enhance flexibility and efficiency (Gruen & Grattan, 1993:149).

structured development of the skill levels within an organisation (Mathews, 1990; Still & Mortimer, 1993). As research indicates (see Table 3.4), the key reforms undertaken through the principle of Award Restructuring have focused on the reduction of job classifications, the establishment of skill-related career paths and variations in terms and conditions of employment.

Award restructuring facilitated the process of limited or 'managed decentralised' productivity bargaining between the parties to awards (Davis & Lansbury, 1998; MacDonald & Rimmer, 1989). Research indicates that the results of award restructuring were mixed (Curtain & Mathews 1990). However, in retrospect it provided the platform for further workplace reforms through enterprise-based agreements, particularly in the manufacturing and public sectors (Still & Mortimer, 1993; Fox et al, 1995).

Award restructuring also provided the foundation for the further decentralisation of workplace reform (Rimmer, 1994) or what Davis and Lansbury (1998) describe as co-ordinated flexibility. This new industrial relations framework facilitated rather than impeded change, by allowing more flexibility, innovation processes and agreements (Davis & Lansbury, 1998; Mathews, 1990).

3.4.3 Enterprise Bargaining Principle

The move to further decentralise the regulation of terms and conditions to the level of the enterprise was initially rejected by the Australian Industrial Relations Commission (AIRC). Its twin concerns related to (a) reservations about the maturity of the parties and (b) the pace of reform (Fox et al, 1995).

Table 3.4 Workplace Changes: Award Restructuring and Perceived Value*

	Introduced through award restructuring (%)	Importance of change (mean)
Reduction in job classification	53	2.55
Establishment of skills-related career paths	48	2.73
New training arrangements	34	3.04
Reduction of demarcation lines	37	2.84
Broadening the range of tasks performed by employees (multi-skilling)	44	3.15
Introduction of consultative/employee participative arrangements	36	3.07
More flexible working hours arrangements	23	2.43
Averaging or removal of penalty rates	8	2.45
Altered terms and conditions for part-time and casual employment	9	1.98
Reduction in overstaffing	13	3.00
New forms of work organisation	16	2.91
Review of sick leave provisions	4	1.87
Annualised pay	4	1.96
Greater flexibility in the taking of annual leave	4	1.72
Compensating overtime with time off	3	1.84
Performance-based pay	5	2.72
Greater communication with employees	10	3.34
Changed workplace culture	12	3.43
Commitment to continuous improvement	10	3.52

*Note: The table is the result of a survey of large enterprises. The first column relates to changes introduced as a result of Award Restructuring and the second (column 2 ranging from a low of 1 to a high of 5) relates to the impact of the change on achieving the paramount business objective of the workforce.

Source: Sloan (1993).

However, under sustained pressure from all parties, the AIRC through the National Wage Case of October 1991, established the next stage in the micro-economic or workplace reform agenda - The Enterprise Bargaining Principle⁸. The Enterprise Bargaining Principle continued the momentum of deregulation by providing the framework for enterprise-specific agreements to become the main vehicle in the determination of working conditions and rates of pay (Charlesworth, 1997).

However, the framework of the Structural Efficiency Principle was maintained, with agreements based upon improving productivity and efficiency (Gardner & Palmer, 1996). A key procedural reform undertaken by the commission under this principle was the reduction in its role as arbitrator over total wage outcomes, preferring the role of conciliation between the parties to ensure minimal safety net provisions (Morris, 1996). This development placed the responsibility for enterprise bargaining firmly in the hands of the negotiating parties (Fox et al, 1995).

Further reforms followed the establishment of the Enterprise Bargaining Principle. These were primarily driven by the Keating federal Labor government, which considered that the pace of reform needed to be increased (Kramer, McGraw & Schuler, 1997). The legislation which followed included Certified Workplace Agreements in 1992, the Enterprise Awards Principle in October 1993⁹ and the Industrial Relations Reform Act 1993, which consolidated these changes. The thrust of these changes maintained the progressive shift of responsibility for the substance of agreements firmly into

⁸ The term 'enterprise bargaining' refers to a particular process, bargaining, conducted at a particular level, the enterprise. It can operate with any substantive issue, agenda, relate to collective and/or individual bargaining and could either co-exist with, or be completely independent of, the process of conciliation or arbitration. The workplace rules arising from enterprise bargaining can supplant complement or replace those arising from other processes including conciliation and arbitration (Fox et al, 1995:615).

⁹ Introduced by the AIRC in June 1993 to replace the Enterprise Bargaining Principle. Its essential difference was the incorporation of technical features associated with the traditional award system (Fox et al, 1995:621).

the workplace, while further reducing the role of third parties to the negotiations (Fox et al, 1995).

The election of the Howard federal Coalition government in 1996 provided further impetus to the decentralisation of labour regulation and workplace reform. As Kramer et al (1997) note with regard to the objectives of the Workplace Relations Act (1996):

The objects of the Act reflect the Coalition's wish to entrench the workplace as the focus for industrial relations and provide employers and employees with a choice over the form of agreement to rule in the workplace (p.115).

The key aims and objectives of the Act include:

- a more direct relationship between employers and employees, with a much reduced role for third party intervention;
- a simplified system for all participants, without the heavy regulatory burden;
- encouragement of international competitiveness through higher productivity and a flexible labour market;
- ensuring the primary responsibility for determining matters affecting the relationship between employers and employees rests with the employers and employees at the workplace or enterprise level;
- providing the means for wages and conditions of employment to be determined as far as possible by agreement of employers and employees at the workplace or enterprise level, upon a foundation of minimum standards

(Clark, 1997:31-32).

In addition, the AIRC's powers to arbitrate have been restricted to approximately 20 issues. The Act also provides for the development of enterprise unions and an end to compulsory unionism. This continued deregulation or fragmented flexibility has created a substantial change in the regulatory environment of the labour market (Davis & Lansbury, 1998). These changes have been predicated on the philosophy that a more dynamic and competitive economic environment can best be enhanced by increasingly decentralising responsibility to the workplace, as it is the management and the workforce that understand the needs and constraints within an enterprise (Fox et al 1995; Clark, 1997).

3.5 World Best Practice - The Australian Context

To facilitate and complement the building of international competitiveness in Australian industry, four influential policy documents focusing on international comparisons emerged in the early 1990s - *Developing Australia's National Competitiveness* by the Business Council of Australia (1991), *The Global Challenge* by the Australian Manufacturing Council (AMC) (1990); Bureau of Industry report on productivity (1990) and the *Improving Australia's Competitiveness* (1991) discussion paper from the Department of Industry, Technology and Resources. Rimmer et al (1996) however, identify the Jackson Committee report, which focused on a lack of a 'productivity culture', as a primary source in developing the concept of industrial competitiveness in Australia. What these policy documents and reports highlighted were the performance gaps between Australian and international organisations and the need for the development of a new workplace culture. As the AMC (1990) report illustrates:

Australian industry lags behind the rest of the world in modernising its workplace culture to achieve greater productivity,

to generate and reward skills more effectively, to increase quality..... While a few companies show what is possible in Australia we generally fall behind international 'best practice'..... profound changes in attitude are needed by management, trade unions and training institutions, and a sense of urgency is required in all areas of industry (p.57).

Essentially, (as Table 3.5 illustrates) these reports reinforced the problems associated with a workplace culture that was still entrenched in the uncompetitive protectionist legacy (AMC, 1990; Curtain & Mortensen, 1994).

As Table 3.5 illustrates, the proposed changes focused on the key micro-economic areas of workplace reform. To show its support for the development of a new workplace culture in Australia, the Hawke federal Labor government funded a study mission in mid-1991. This was conducted by the Department of Industrial Relations and supported by the Australian Manufacturing Council.

The study's terms of reference were to investigate the adoption, interpretation, dissemination and general experiences of *best practice* in Japan, Germany, Sweden and the USA. The key finding from the report - *International Best Practice: Report of the Overseas Study Mission* (DIR/AMC, 1992) – identified the need for the development of a 'new workplace culture', focusing on the relationship between management, trade unions and employees if "Australian industry is to significantly lift its international performance" (DIR/AMC, 1992:3). Specifically, the report noted that success will depend on an organisation's capacity to respond with more flexible organisational structures, to view training and education as essential to competitive advantage, to have the full commitment and support of senior management and develop more integrated customer and supplier relationships (DIR/AMC, 1992).

Table 3.5 The “Old” and “New” Workplace Cultures

Criteria	Old	New
Management Style	Hierarchical	Flat structures, team orientated
Production Cycle	Long runs, for stock	Flexible- Just in Time
Quality	Post check for rework	Quality problems solved as as they arise. Employees take responsibility
Skills	Simple Skilling/ deskilling Employees compartmentalised	Multi-skilling. Skill development integral to production advantage team motivation
Source of Improvement	Top down	Bottom up and top down
Industrial relations	Many unions/ demarcations Antagonism	Industry focused unions Shared goals

Source: AMC/Pappas et al 1990:59

In an Australian context these policy documents became the catalyst for the introduction of concepts and techniques such as benchmarking and best international practices, which focused the organisation on the key element of competitive advantage at an international level (Cook, 1993; Macneil et al, 1993). To facilitate the adoption and dissemination of these new patterns of work throughout Australian industry, the federal government set-up the

Australian Best Practice Demonstration Program (ABPDP) in 1991. The ABPDP awarded substantial funds to organisations to facilitate their implementation of international best practice. Winners of the awards were also committed to wide dissemination of their achievements (Macneil et al, 1994).

3.5.1 Developing Best Practice in Australia: The Australian Best Practice Demonstration Program

While the Restructuring and Efficiency Principle (1987) and The Structural Efficiency Principle (1988) had been fundamental in initiating structural reforms in the Australian labour market, they were only the catalysts for further restructuring. As Rimmer et al (1996) note: “Award restructuring fell a long way short of the full agenda for best practice, but it did prepare the ground for its subsequent development” (p.9).

The setting up of the ABPDP was announced in March 1991 through Prime Minister Hawke’s industry statement - *Building a Competitive Australia*. The key objective was to facilitate the adoption and dissemination of international best practice as a means of enhancing Australian enterprises’ international competitiveness (Curtain & Mortensen, 1994). The Program provided the framework to initiate the development of new patterns of work. These principles and practices of continuous improvement also focused enterprises on developing more flexible, adaptive and responsive approaches to their environment and market (Kasul & Motwani, 1995). Fundamental to this is a process of open communication, co-operation, commitment and compliance from management, trade unions and employees (Dertouzos, Lester & Solow, 1989; Lansbury, 1994).

The ABPDP was administered jointly by the Department of Industrial Relations and the Australian Manufacturing Council. The program was initiated in 1991 with a series of advertisements “offering project assistance for firms willing to

apply best practice principles” (Rimmer et al, 1996:11). Of the 453 applicants, 43 were admitted to the program. One of these successful applicants was the Williamstown Naval Dockyard under its then corporate name of AMECON, and the subject of the case study in this thesis. The emphasis of the program was the pursuit, development and dissemination of international best practice through Australian enterprises. As Rimmer et al (1996) note: The program objectives were threefold:

- to stimulate Australian enterprises to adopt international best practice;
- to identify methods and approaches for the implementation of international best practice in Australian enterprises; and
- to promote a wider understanding of international best practice and the benefits of adoption by Australian enterprises (p.11).

As noted above, fundamental to the development of these new patterns of work organisation is a paradigm shift in the employment relationship, from one based upon conflict to one of consensus. In this context, for such practices to be successful, a process of open communication, co-operation and commitment across a range of areas, in particular quality and the management of employee relations is required (Dertouzos et al, 1989; Lansbury, 1994).

3.5.2 Best Practice Management in Australia

Best Practice Management has been defined by Ivanoff and Prentice (1994) as:

..... a comprehensive, integrated and co-operative enterprise approach to the continuous improvement of all managers. It is the way best practice enterprises plan and organise their management training, education and development practices to help managers deliver world class standards of performance (p.11).

The focus of Best Practice Management is on developing the requisite skills for a more complex, dynamic and competitive environment. Cross-cultural research by Rand (1995) (cited in Karpin, 1995) identified several core practices in organisations identified as best practice in management development. These included:

- linking management development to corporate objectives;
- building in assessment;
- adopting provisions of management development to changing business demands; and
- recognising economies of scale in management development (p.269).

In an Australian context, Best Practice Management emerged from the *Enterprising Nation* Report (also known as the Karpin¹⁰ report). The Karpin Committee was an industry task force on leadership and management skills under the chairmanship of David Karpin. It was commissioned by the Hawke federal Labor government in 1991 in recognition of the national significance of management quality. The committee reported its findings in April 1995. The report identified management as a key area in improving organisational competitiveness in Australia. The taskforce also recognised a strong link between the development of a “new paradigm of enterprise best practice” (Karpin, 1995:270) or new workplace culture and best practice management development (Karpin, 1995). This reinforced a key finding of the Australian Best Practice Demonstration Program which identified the development of management skills as fundamental to enterprise best practice (DIR/AMC, 1994).

¹⁰ The report was the most comprehensive investigation into Australian management ever undertaken. Its focus was two-fold; firstly, it assessed and measured the strengths and weaknesses of Australian management and secondly, the committee identified ways to change and improve Australian management standards. (Ivanoff & Prentice, 1994; Karpin, 1995). However, the incoming Howard coalition government effectively ignored its findings and recommendations.

Both Ivanoff and Prentice (1994) and the Karpin Committee Report (1995) identified Best Practice Management Development as a strategic element in Australian industry developing its international competitiveness. In particular they distinguished this as a key variable in developing a valued-added industry base. As such, Best Practice Management Development was seen as key area in the development of enterprise best practice (Karpin, 1995).

3.5.3 Best Practice Trade Unionism in Australia

A second key area in the development of a best practice culture is Best Practice Trade Unionism. This can be defined in the context of the 'new workplace culture' of shared objectives and responsibility (Carnegie, 1994). Best Practice Trade Unionism underpins a fundamental change in trade unionism in Australia at both a macro and micro level. At a macro level, Best Practice Trade Unionism developed out of the influential policy document *Australia Reconstructed* (ACTU/TDC, 1987). The report recommendations included more central co-ordination and decision-making to facilitate the development of a national strategy for trade unionism in Australia.

The reduction in trade union numbers through a process of mergers and amalgamation, leading to the development of approximately 20 industry sector-based unions, was a major policy objective in this context (ACTU/TDC, 1987: 187-194). The outcome of this was the development of industry-focused unions, which represent and reflect an advanced western market economy (ACTU/TDC:1987).

In terms of achieving these objectives, the restructuring of the trade union movement through mergers and amalgamations has seen a decrease in the number of trade unions by nearly 60 per cent over a 10-year period. (see Table 3.6) and a reduction of average unions per worksite from 2 to 1.5 (AWIRS,

1995). In addition, the mergers and amalgamations have created 11 trade unions with over 100,000 members. The 20 largest unions account for more than 85 per cent of total union membership (Deery et al, 1997).

Table 3.6 Total Number of Trade Unions in Australia

Year	Total Number of Trade Unions
1987	316
1988	308
1989	299
1990	295
1991	275
1992	227
1993	188
1994	157
1995	142
1996 ¹¹	132

Source: ABS - Trade Union Statistics, Cat No 6323.0

At a micro or enterprise level, the ABPDP defines Best Practice Trade Unionism in the context of the delegates’ role:

... the traditional role of union delegates has expanded with the advent of Best Practice and Enterprise Bargaining. As confrontational and reactive approaches to industrial issues have given way to greater consultation and co-operation, union delegates are involved in a wider range of workplace issues than ever before.... they must engage in dialogue and negotiate workplace change with management in order to make the workplace more competitive (1994:38).

¹¹ 1996 is the last available year for these statistics.

This definition reinforces the shift or devolution of industrial relations to the level of the enterprise (Ogden, 1994). Secondly, the change in focus from a traditional conflict or adversarial approach to industrial relations to a consensual style reflects the strategic unionism model developed in *Australia Reconstructed* (ACTU/TDC, 1987). The willingness of the trade union movement to embrace these concepts is illustrated by Mansfield (1994) who notes in the context of increasing deregulation and globalisation:

.... progressive workplace reform is a vital prerequisite for expanded employment opportunities, greater job security, career paths, skill development, more interesting and varied jobs, improved work environment and better pay and conditions of employment (1994:i)

Within the context of best practice, unions have a broader perspective and proactive role in workplace change, as a partner in wealth production, rather than the narrow or traditional view of wealth dissemination (Ogden, 1994). Through the tools of Best Practice and Enterprise Bargaining, the union movement has the opportunity to support, direct and implement a new workplace culture (Mansfield, 1994). Ogden (1994) has identified the key elements of Best Practice Unionism:

- as strategic in its outlook, and long term in its thinking;
- as concerned with wealth production, as well as wealth distribution;
- as a proactive process;
- as commitment to union amalgamations;
- to minimising unnecessary demarcations through training and changes in work design;

- concerned with developing the involvement of its rank and file leaders in the workplace;
- as awareness that union delegates are up-skilled to perform their new role in the context of the strategies of the whole union movement;
- as determined to maintain its independence in order to both protect its members and assist them to make a constructive contribution for the good of the enterprise and to contribute to Best Practice (p.17)¹².

Through the concept of strategic unionism, the development of Best Practice Trade Unionism has provided a paradigm shift in the Australian trade union movement's perception of its role in the new economic environment (Mansfield, 1994). There is a realisation that job security and career opportunities require a competitive and efficient workplace. The union movement has actively set about restructuring its role and perspectives in view of the development of this new workplace culture (Kelty, 1994; Mansfield, 1994). However, as Carnegie (1994) notes:

Old values and old traditions do not die easily and for both employers and employees developing such a paradigm shift is not going to take place overnight. It must be nurtured and fostered (p.8).

With the shift toward enterprise level bargaining, a framework has been developed for a new more proactive role for trade unions at the workplace. Thus, best practice trade unionism at a workplace level is a clear break from past attitudes as well as beliefs and an integral part of the development of more efficient and competitive organisations (ABPDP, 1994; Lansbury, 1994).

¹² As the point illustrates, the development of strategic unionism and a consensus approach to labour and management relations does not undermine the traditional role of trade unions in seeking better terms and conditions for their members.

3.6 Unresolved Issues in the Research Literature

The establishment of this new decentralised framework (Morris, 1996; Davis & Lansbury, 1998) has provided the opportunity for the development of enterprise level reform to enhance performance. However, the restructuring and reform of the Australian workplace requires immense resources and time in order to establish this new culture (Mansfield, 1994; Karpin, 1995; ACIRRT, 1999; Lansbury & Michelson, 2001), not least the changes in the relationship between management and labour, from the traditional conflictual autocratic relationship to a genuine consensual participative framework, if this new 'post-Fordist' workplace portrayed by Mathews (1989, 1990, 1994) and others (Piore & Sabel; Emery, 1996), is to be established. Indeed, Wright (1995) and others (Appelbaum & Bait, 1994; Barry, Bowden & Brosnan, 1998; Osterman, 2000 and Godard & Delany, 2000), argue that there is little in-depth research to indicate a transformation in work organisation. Wright (1995), argues that most of this research evidence in Australia to date is limited foreign companies or subsidiaries of foreign multinationals. However, he does concur with Mathews (1994), that there is a new wave of interest in new patterns of work organisation centred on employee participation and job design as a key factors in increasing productivity and international competitiveness of Australian organisations.

However, to date little research has been undertaken on organisations moving through these processes and stages of micro-economic reform to determine how successful Australian organisations have been in defining new work patterns and practices, and how these reflect improvements in organisational resource utilisation and enhance organisational efficiency and therefore performance. In addition, research into the extent to which the stakeholders such as management, trade unions and employees have embraced this paradigm shift in work patterns and workplace culture has tended to focus on labour market

trends (Rimmer & Zappala, 1987; Sloan, 1993; Harley, 1995; ACIRRT, 1999), rather than at the enterprise level.

3.7 Summary

The rapid decline in Australia's competitiveness over recent times has initiated an unprecedented review and reform of the centralised framework of economic and industrial structures and policies. The Jackson Report (1975) was instrumental in drawing attention to the condition of Australian industry (particularly manufacturing) and the "associated industrial relations and performance problem" (Costa & Duffy, 1991:66). The objectives of increased productivity and efficiency within an increasingly deregulated domestic and global market has dominated the reform agenda through the 1980s and 1990s. Supported by influential policy documents from business groups and federal government departments, the reform agenda has focused on policies to facilitate micro-economic reforms of the labour markets creating a unique blend of regulation and flexibility (Mathews, 1994). To facilitate these changes, the Prices and Incomes Accord provided a framework for restructuring and reforming Australian labour market policy.

This reform and restructuring has also created the environmental conditions for enterprises to develop new or flexible patterns of work and a new workplace culture underpinned by co-operation and consensus. What is of equal significance is the level of agreement and collaboration by all parties (at a macro-level) in achieving these objectives (in keeping with the principles and the guidelines of *Australia Reconstructed* (ACTU/TDC, 1987) and Best Practice) (Mathews, 1990). Supported by the Australian Best Practice Demonstration Program and enterprise bargaining, the focus has been on cooperatively unlocking productivity at the enterprise level through the

elimination of archaic and restrictive work practices (Curtain & Mathews, 1990; Mathews, 1994). These changes will be examined through a detailed case study investigation of a major Australian organisation.

CHAPTER 4

THE DEVELOPMENT OF THE MODERN SHIPBUILDING INDUSTRY IN THE UK AND AUSTRALIA

4.1 Chapter Objectives

The objectives of this chapter are twofold. Firstly, to develop an overview of the characteristics of work organisation at an international level (with specific reference to the UK, where modern shipbuilding developed). Secondly, to examine the development of work patterns and practices within the Australian shipbuilding industry. This provides a contextual framework for the factors which influenced the development of work organisation in the modern shipbuilding industry, and the changes undertaken by the case study organisation.

4.2 The Characteristics of the Modern Shipbuilding Industry

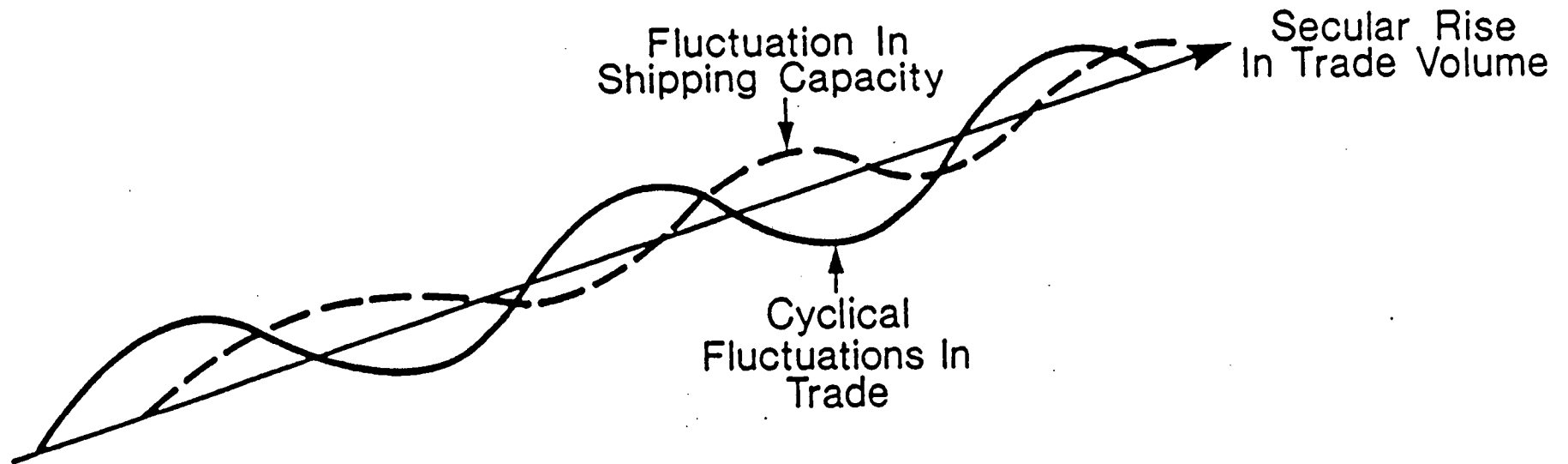
The modern shipbuilding industry emerged in the UK during the period 1840-1860 with the shift from wood and sail to iron and steam production (Kelly & Allen, 1918; Parkinson, 1960; Lorenz, 1991). As Hobsbawn (1987:52) states: “The last triumph of British industry was the virtual monopoly of shipbuilding”¹³. This dominance was reflected in the size of the British mercantile fleet as noted by Hobsbawn (1975):

¹³ Mathias (1969) notes that this dominance was achieved in part by the Americans ceasing to be a serious threat because of the distraction of the Civil War (1861-1865). In addition, many of the innovations in shipbuilding came from Britain with the development of the multiple expansion engine and the steam turbine.

In 1840 and 1850 British vessels made up a quarter - more or less - of the world nominal steamer tonnage, in 1870 rather over one-third, 1880 over half. To put it another way, between 1850 and 1880 British steam tonnage increased by 1600 per cent, that of the rest of the world by 440 per cent (p.75).

The catalyst for this expansion was twofold. Obviously war between nations maintained demand for naval production through re-armament. However, peacetime strategies were considered of equal importance as the British endeavoured to keep other colonial powers (in particular the French and the Dutch) out of the trade links between Britain and its colonies and dominating the increasing Baltic, Mediterranean and trans-Atlantic trade routes (Mathias, 1969). These dual strategies laid the foundations for the modern shipbuilding industry, which can be divided into the two broad sectors, merchant and naval. Whilst to a certain extent these two markets can be complementary (as naval requirements during wartime drew off many merchants ships for use as supply vessels [Mathias, 1969]) the characteristics of supply and demand are fundamentally different. The merchant shipbuilding industry is cyclic by nature (as Figure 4.1 illustrates). The long-run production cyclical of the industry, and the intensive capital and labour costs, make it particularly sensitive to changes in factors which are exogenous to the industry. These include technology, competition, economic cycles and world trade (Todd, 1985). Within this trade cycle two categories can be identified. The 'traditional' shipbuilding cycle, which is distinguished by the absolute level of general trade, and the 'modern' shipbuilding cycle, which reflects the increasing complexity of trade patterns and is expressed through the development of specialised ships (Todd, 1985).

Figure 4.1 The Ship Cycle and Trade



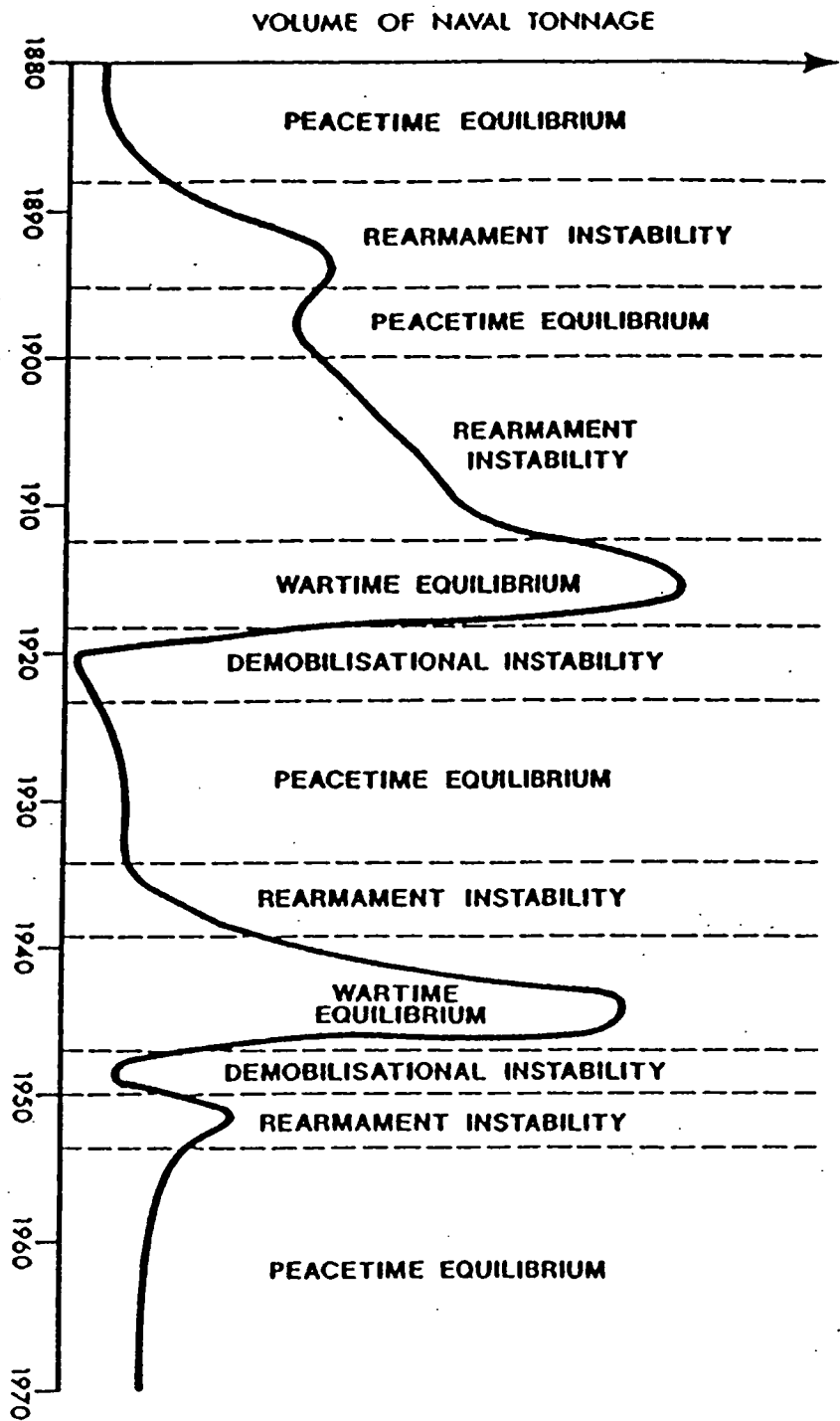
Source: Todd, (1985: p.214).

The naval shipbuilding sector is a significant part of the shipbuilding market and capacity, and has its own specific requirements. However, despite perceived advantages for the naval shipbuilder of governments maintaining domestic warship production, maintenance, refitting and renewal (as part of an overall defence strategy) the naval shipbuilding industry has its own unique cycle of production. As Todd (1985) notes:

Such vessels not only have their own supply requirements which can be quite different from those pertaining to merchant ships, but they also respond to a peculiar form of derived demand that is very different from the ship cycle affecting merchant ships (p. 208).

This peculiar form of derived demand relates to the sensitivity to political considerations at any point in time (Todd, 1985). Changes or fluctuations in naval procurements tend to respond quickly to movements in political or strategic balance, as is illustrated in Figure 4.2. Despite the (political and strategic) considerations that underpin naval procurement, Todd (1985) has identified a 'wave cycle' in naval production. Peacetime reflects the balance phase of maintaining an up-to-date defence capability. Political disturbance triggers a rearmament phase leading to full-scale activity or defence production (warships, troop-carriers etc) which is the disequilibrium stage. When this passes, production returns to the peacetime equilibrium phase (Todd, 1985).

Figure 4.2 The Wave-Cycle of Naval Production



Source: Todd, 1985 p.227

However, whilst the 'wave cycle' is an important aspect of naval production, the role of the state as an owner, manager and consumer of naval production is a significant variable in the development of production strategies in the defence industry. The significance of the state in naval shipbuilding is two-fold. The nature of naval shipbuilding above all else has traditionally been performance (quality) focused. In addition, because of the specialised nature and complexity of naval production, costs are significantly higher (Todd, 1985; Harris, 1999; Woodman, 1999). Under the ownership or direction of the state, and as the major customer, this cost factor had not traditionally been a major issue or over-riding consideration (Lorenz, 1991). As Todd (1985) points out "... an obvious consequence of this situation is that shipyards which choose to specialise in warship work largely remove themselves from the discipline of the market" (p. 313). Thus, work patterns and practices which may be seen as restrictive and uncompetitive under market conditions are not identified as such in an environment traditionally unencumbered by issues of cost, which, as noted above, was not a central issue in developing competitive advantage in the naval shipbuilding industry.

4.3 Organisation of Work in the Shipbuilding Industry

As previously noted, the modern shipbuilding industry developed in Britain during the period 1840-1860 with the structural shift from wooden to iron ship construction. Because of the high degree of craft-based union organisation in the dockyards during the transitional period, the existing trade unions were able to resist major changes in the production process, the allocation of work and remuneration of labour (Jones, 1957; Pollard & Robertson, 1979). As Hobsbawm (1987) points out:

Tradition still ruled on the water, and notably, in spite of the change from timber to iron and from sail to steam, in the matter of building, loading and discharging ships (p.28).

The complexity of work organisation was further extended by the cyclical nature of the work, with different labour markets (as well as the vertical differentiation in labour between the craftsman, semi-skilled and labourers) payment systems and unions involved at the various stages from laying the keel to outfitting (Brown et al, 1972; Cousins & Brown, 1975). Indeed, by the end of the 19th century, more than 21 shipbuilding trade unions alone organised the skilled workforce (Jones, 1957; Lorenz, 1991) and up to 130 'general' unions represented the semi and unskilled labour of UK dockyards (Pollard & Robertson, 1979). In the naval dockyards approximately 50 trade unions represented the cross-section of skilled, semi-skilled and unskilled labour (Jones, 1957). Further, research (Brown et al, 1972; Cousins & Brown, 1975) indicates that membership of craft unions in this period of change¹⁴ remained strictly limited to the craft-specific skilled workers (Jones, 1957). Using the example of the shipwright, Thompson (1968:286) notes that "... by reason of the character of his work and the scarcity of his skill, could maintain or extend trade union defences". The effects of these 'restrictions' were identified by Hobsbawn (1975) who noted in the period 1848 to 1875:

Shipping as we have seen, did not get noticeably faster in the period. Its comparative technical sluggishness is indicated by the fact, by now well known, that the sailing ship continued to hold its own against the new steamships surprisingly well, thanks to technologically less dramatic but still substantial improvements in its own efficiency (p.74).

¹⁴ During this period the pre-eminent position of craft unions was being eroded by the emergence of general unions whose focus was on membership size as a source of power (Pelling, 1985).

The craft system was further perpetuated and reinforced by a highly restricted and specialised apprenticeship system (often taking seven years to complete) and overseen by the unions (Kelly & Allen, 1918; Pollard & Robertson, 1979; Reid, 1980). In addition, work occupations remained separated socially even when working in the same physical location (Parkinson, 1960). Despite the restriction the craft and apprentice system put on work practices, employers were not overtly against this system as it provided an important source of cheap labour (Kelly & Allen, 1918; Roberts, 1967; Lorenz, 1991). However, there was a potential downside for both unions and employers. Because apprentices were indentured they could not be laid off during a recession. Secondly, they could be used as strike breakers (Pollard & Robertson, 1979). Therefore, for the union the indentured apprenticeship system was a source of control and power. However, the nature of employment placed the burden of job insecurity upon qualified tradesmen (Pollard & Robertson, 1979).

With the advent of World War I, the (derived) demand for shipping was the catalyst for the development of large-scale production using a process known as prefabrication. The development of prefabrication allowed ship manufacturers to sub-contract major sections of the shipbuilding process outside the dockyard. In effect the dockyard became an assembly centre (Hutchin, 1948). The changing nature and increased complexity of ship production (over this relatively short period) saw the introduction of a spectrum of crafts into an already heterogeneous industry. In particular the metal, building and engineering trades gradually became major crafts in the dockyard (Pollard & Robertson, 1979).

Throughout this period the division of labour progressed through the addition of new trades rather than the subdivision of the traditional shipbuilding trades (Pollard & Robertson, 1979). However, the stratification of the workforce along craft lines extended these specialisations into very detailed division of labour

within the shipyards, both between and within trades (Lorenz, 1991). The combination of these complex divisions of labour and the operation of a closed shop¹⁵ policy (Reid, 1980) allowed considerable control of working patterns and practices to reside with the workforce (through their trade unions) whilst concomitantly limiting management control (Strath, 1987). As Lorenz, (1991) notes:

Union imposed restrictions clearly constrained the employers' ability to reorganise the division of labour and introduce new machinery. In particular, the skilled unions had considerable success in preventing the employers from exploiting the possibilities which technical change offered for substituting less skilled and lower paid workers for skilled workers (p.58).

This had been reinforced by repeated efforts to introduce less skilled labour through the latter half of the 19th century (Lorenz, 1984). This had the effect of ensuring a high degree of mistrust between management and skilled labour over any changes in institutional arrangements in the allocation or division of labour between the skilled and semi-skilled/unskilled workforce (Lorenz, 1991). This also ensured that the characteristics of trade unions within the dockyard remained craft rather than industry based (Pollard & Robertson, 1979). These work patterns and practices, the shopfloor control and organisation of the trade unions, and what Lorenz (1991:68) describes as 'anticipated resistance' also inhibited the development of scientific management within the dockyards as other mass production techniques such as prefabrication gradually turned dockyards into assembly points rather than production facilities (Urwick & Brech, 1946; Littler, 1980). This lack of homogeneity and the complexity of the work in a period of

¹⁵ A closed shop requires new employees to become members of the appropriate trade union as part of their terms and conditions of employment.

change, combined with the maintenance of craft-based unionism led to (and entrenched) one of the most industrially volatile aspects of work organisation - demarcation or jurisdictional disputes (Webb & Webb, 1920; Roberts, 1967).

4.3.1 Demarcation in the Shipbuilding Industry

Of all the types of industrial strife, the one most closely associated with shipbuilding is the demarcation or jurisdictional dispute (Pollard & Robertson, 1979:164).

The major labour or industrial issue which emerged from this highly unionised and stratified organisation of work in the shipbuilding industry was the development of lines of demarcation¹⁶ and the associated demarcation disputes (Pollard & Robertson, 1979). As Parkinson (1960) notes: "Few issues have attracted more attention in shipbuilding than that of demarcation" (p.160). The historical origins of demarcation in the shipbuilding industry can be traced back to the 18th century (Parkinson, 1960; Brown et al, 1972), however, comprehensive (and highly technical) demarcations emerged in the 1860s when the development of iron and steel ships was followed by an increased variety of ship types, size and complexity (Roberts, 1967). A central factor in the persistence of such disputes in the shipbuilding industry has been technological change and the lack of corresponding realignment in union groupings during the 19th century (Jones, 1957; Phelps-Brown, 1960; Roberts, 1967; Brown et al, 1972; Cousins & Brown, 1975; Pollard & Robertson, 1979). As Jones (1957) points out:

¹⁶ Demarcation relates to the trade union rules, collective agreements and customary work patterns and practices which control the allocation of tasks within (skill-level) and more specifically between workers of different crafts and unions. In practical terms, demarcation rules are usually printed lists which identify the boundaries within and between trades (Roberts, 1967).

Thus while craft unionism generally receded into the background, and has long since surrendered its position as the leading and only form of unionism, in shipbuilding, it remained firmly entrenched.... (p.161).

Because of the extreme specialisation in the division of labour, the development of new work practices and patterns of work created tasks and assignments that could be allocated to more than one craft (Phelps-Brown, 1960). In addition, as Parkinson (1960) also points out, once demarcations are established they tend to spread. The situation was further complicated by the influx of more than 20 non-traditional trades, in particular engineering and steel, to accommodate innovations in shipbuilding. These trades also brought with them their own traditional policies including apprenticeship systems, strong union affiliation, lines of demarcation and enforcement of union membership through closed shop arrangements (Jones, 1957). The move to prefabrication also allowed the inflow of semi-skilled and unskilled workers to the dockyard, with equally strong union organisation (Parkinson, 1960). As Roberts (1967) comments:

The difficulty experienced in drawing up demarcation lines between trades principally stems from their overlapping abilities and skills. The extent of craft overlap is determined by the tools employed and the raw materials worked on by different trades: thus, although most trades have been in conflict with each other at one time or another, disputes occur more commonly within trades' groups.... and since there are few detailed blueprints for allocating work, the detailed allocation of work differs between districts and yards. As well as emphasising the arbitrary nature of many demarcation decisions, this situation has had the more serious effect of discouraging unions and employers from attempting root-and-branch revisions of these allocations. The technical changes

which continually occur and disrupt established demarcation in the process are of almost infinite variety (pp.11-12).

Thus there is no limit to the variability of issues which may constitute or emerge as a demarcation dispute (Parkinson, 1960). Every change (usually involving the introduction of technology) that disturbed the existing custom and practices of work organisation, and resulted in one craft securing (or potentially securing) an advantage, was a source of conflict (Pollard & Robertson, 1979). When this is put in the context of the highly insecure nature of employment within the industry, the importance of maintaining jurisdiction over work for trade unions became arguably the most important function they performed for their members. The sequential nature of work organisation was another important constraint in the production process, as different trades were employed at various stages of the construction process (Pollard & Robertson, 1979). The iron and steel trades dominated the first half of the production process, with trades such as joinery becoming predominant in the latter stages of construction (Parkinson, 1960). Therefore, at various stages in construction there would be large numbers of trades on idle-time or laid off, even when there was substantial tonnage under construction (Pollard & Robertson, 1979). As Roberts (1967) notes :

- The insecurity of employment [through trades being employed in sequence and through frequent and often severe downturns in trade] which has been endemic to the industry is often cited as giving the shipbuilding trades added incentive or sometimes even basic motivation, for enforcing demarcations (p.12).

This was also a factor in unions (where possible) restricting the use of overtime. As Pollard and Robertson (1979) comment:

The unions permitted overtime in emergencies, such as the docking of a vessel or the erection of staging, but they were firmly opposed to the 'pernicious' system of regular overtime - which extended the working day from 6am to 8pm - because they felt it created unemployment (p.160).

Thus, from the perspective of the trade unions and their members, lines of demarcation were seen as necessary to protect future employment, which was seen as a legitimate goal (Pollard & Robertson, 1979). Consequently, lines of demarcation in shipbuilding remained a major part of the industry as a result of the preservation of a highly developed craft-based union structure, which perpetuated high levels of industrial conflict (Cousins & Brown, 1975:59).

A further problem stemming from this work culture was that the settlement of demarcation disputes often took little account of the problems or issues at the heart of the dispute - which was the most appropriate craft or trade for the work. The ultimate decision was a compromise based upon political lobbying and the industrial power of the competing unions (Parkinson, 1960; Roberts, 1967). Thus, despite some unions developing agreed process and procedures for dealing with demarcation disputes (for example a demarcation panel) the localised nature of these compromises further complicated the nature of work organisation from dockyard to dockyard (Jones, 1957). This created further difficulties as the lack of uniformity and the changing nature of work (as well as determining when one job finishes and another begins) meant that each settlement had no permanent value (Jones, 1957). This position was also reflected in the trade unions' approach to restricting entry to the apprentice system, and controlling overtime (Roberts, 1967). What also favoured the development and maintenance of these restrictive work patterns and practices was the pace of change within the industry. Despite the move from wood to iron (and then steel) the technical change was never at a pace to alter or make a radical break from the traditional crafts of

shipbuilding (Phelps-Brown, 1960; Roberts, 1967). Therefore the opportunity to sweep away these restrictive work practices never eventuated.

While demarcation disputes were not a direct product of management-labour relations (rather intra-union relations) management could not dissociate itself from the distraction which these issues and problems raised, particularly with regard to issues of efficiency and competitiveness. In this regard, management was often powerless to influence the outcome or settlement of the dispute. As Parkinson (1960) notes:

.... few managements would dare reject a demarcation decision once arrived at on the grounds that it did not fit with yard practice.... it is of greater importance to prevent the stoppage than to press for what on paper might be the ideal solution. As a result efficiency is bound to suffer in a number of ways (p.163).

As Cousins and Brown (1975: 74) note in this context, despite the issue of demarcation being between trades, when a dispute occurred everybody involved stopped work and there was no need for a picket. This point is supported by Jones (1957) who notes that demarcation disputes led in some districts to a state of complete disorganisation and chaos (p.170).

The Cost of Demarcation Disputes. The cost of demarcation disputes to the shipbuilding industry can be seen as two dimensional, in that there are both direct and indirect costs associated with these work practices. Attention has generally focused on the high degree of specialisation that has developed both within and between trades. As noted above, over specialisation was the cause of many disputes. The result of a jurisdiction dispute could not only cost the employer in time lost (over the specific dispute) but often would result in the laying-off of other trades because of the sequential nature of the work (Pollard & Robertson,

1979). A second direct cost related to the sequential nature of the work and the high degree of specialisation which caused delays as work was held up as employees waited for services to be undertaken by one specific trade that could easily be done by other trades (Roberts, 1967:34). As Jones (1957) notes in this context:

Delay and loss of output are also caused by the necessity of having to employ several different trades to perform a specific task, and by the restrictions imposed on the use of certain tools.... A further difficulty is the restriction imposed on the transfer of men from one skilled trade to another even within trades because of the sub-divisions (p.174).

This is reinforced by Pollard and Robertson (1979:161) who note that the tight-knit nature of the skilled trades in particular could inflict crippling damage upon the shipyard if these intra-union demarcations were infringed. This second point provides the context for the issue of indirect costs. The rigid demarcation that developed meant that shipyard labour or human resources could not be readily diverted. Despite the close relationship between trades in terms of work, management was prevented from taking advantage of the interchangeability of labour (Roberts, 1967). This significantly effected the efficient allocation of labour (Pollard & Robertson, 1979). As noted, the issue of demarcation was generally settled at a local level. This reliance on local custom and practice added to the inconsistency and complexity of work organisation (Kelly & Allen, 1918; Roberts, 1967; Pollard & Robertson, 1979). It is difficult to estimate the overall cost of demarcation. However, various estimates (Parkinson, 1960; Roberts, 1967) put the cost at 5 to 20 per cent of wage costs, thereby adding between 3 to 5 per cent to the cost of the ship. In comparison to Japanese shipbuilders, these

practices increased the efficiency gap by between 7 and 20 per cent (Todd, 1985)¹⁷. As Parkinson comments in this context:

.... there would be considerable savings in construction costs if one trade were permitted to perform operations outside its demarcated function. In shipbuilding the Adam Smith argument of saving time in passing from one job to another by specialisation may work in reverse (p164).

However, the push for reform of demarcation patterns and practices on the grounds of inefficient labour usage and unnecessary conflict during the post World War II period was generally muted. Indeed, any change in production was examined carefully by management to ensure it would not result in a demarcation dispute (Parkinson, 1960) rather than for its potential to develop more competitive work practices. As McCarthy (1964:139) points out, the concerns employers had with strong and militant shipbuilding unions, combined with the sheltered nature of the predominantly nationalised dockyards from the vicissitudes of international trade were factors in elevating pressure for change within the industry. Thus as Parkinson (1960) concludes:

.... the indirect consequences of the whole demarcation issue can be much more telling. The distraction to management, the restraints that are imposed on the introduction of new methods of production, the irritation engendered by a constant source of friction - those are the most serious costs of demarcation which, in all their ramifications, continue to retard industrial progress and prevent improvement in productivity (p.165).

¹⁷ The variation in these figures relates to the type of ship, its size and complexity as well as the difference and extent of variations in demarcation lines.

Eliminating the Demarcation Problem. The issue of demarcation was seen (for many years) as a major inhibitor to more efficient work patterns and practices as the following statements indicate:

By 1911 the shipping journal *Fairplay* was asking why some means could not be found to eliminate demarcation disputes altogether by joint tribunal of all trade unions concerned, with the employers in co-operation..... (Pollard & Robertson, 1979:168).

What are the prospects for eliminating the demarcation problem? The length of time for which the problem has existed indicates how intractable it is. Its historical origins can be traced, but the causes underlying it are complex and have changed over the years (Parkinson, 1960:166).

Despite these difficulties, several researchers (Parkinson, 1960; Roberts, 1967; Pollard & Robertson, 1979) suggested policies and practices to overcome the most inefficient aspects of demarcation in the shipbuilding industry. For example Roberts (1967) suggested that demarcation be looked at in terms of varying degree of relaxation that is sought. He suggested categorising them as:

Transferability - free movement of trades within yards.

Interchangeability - employment of substitutable trades within each other's demarcation lines (but without prejudice to the latter).

Flexibility - permission for trades to do work outside their own demarcation lines in order to progress jobs within those lines.

Integration - merging two or more trades together with or without loss of identities (p.37).

Roberts (1967) argues that this list can be seen in terms of order of importance, with transferability of relatively minor importance, whereas interchangeability and flexibility can procedurally remove many of the causes of demarcation disputes through the provision of overlap. Finally, integration aims to remove the need to demarcate between trades by merging them.

A way to facilitate these approaches to the relaxation of demarcation work practices (in particular integration) was suggested by Parkinson (1960) who proposed the need for only one representative trade union for the shipbuilding industry, arguing that most of the conflict arose through inter-union rivalries (p.166). The key aspect, Parkinson noted, was the issue of power. He acknowledged that it is probably unduly simplistic to assume that this issue would be solved easily. However, Parkinson argued an intermediate step was a move to the European model of unionism where shipbuilding workers were organised on an industry rather than a craft basis, thus eliminating many of the demarcation issues associated with over-specialisation of labour. However, as Jones (1957:176) pointed out, this would not solve the problem completely because many of the 'quarrels and stoppages' were a product of conflict and tension between trades as much as within trade boundaries. Cousins et al (1972:80-81) also proposed similar changes, in particular the amalgamation of trade unions, the standardisation of training (apprenticeships) with an emphasis on broadbased craftsmanship, the development of common terms and conditions of employment to promote flexibility and interchangeability between trades, and uniform and enterprise-based bargaining arrangements. All these processes provide the opportunity to make demarcation obsolete. But as Parkinson (1960) concludes:

.... it is obvious that the unions have no direct incentive to reduce their numbers or organise the craft divisions along simpler and perhaps more rational lines; it is a question first and foremost of creating conditions conducive to greater uniformity (p.167).

Thus, whilst the process of demarcation was seen by trade unions (and accepted by employers) as an equilibrium or compromise position in finding the most appropriate organisation of work, in reality it was a political compromise that took account of vested interests (Jones, 1957; Littler, 1980; Lorenz, 1991). These concluding points indicate that pressure for change or modernisation of these work patterns and practices would only come from changes in the economic conditions for shipbuilding which put the employers (usually government) in a stronger position to formulate terms and conditions for more efficient patterns of work. Whilst ultimately such changes needed to be developed with the consensus of the workforce and their representatives, this need not be the case when initiating such change (Parkinson, 1960; Brown et al, 1972; Cousins & Brown, 1975).

It should be noted that in the context of market conditions, it was the volatility of the shipbuilding industry which created and perpetuated the issue of demarcation. The highly insecure nature of the employment this caused within the industry provided the trade unions with the incentive for resisting the dilution of their trade by developing and enforcing restrictive work practices as an economic necessity (Pollard & Robertson, 1979; Roberts, 1967). As Parkinson (1960) comments:

It should be clear that there are a large number of obstacles in the way of eliminating the demarcation problem. It can be argued that the problem is so complicated that any attempt to solve it would be likely to involve no less than a major overhaul of divisions between

crafts and skills, of systems of wage payments, of conditions of employment and recruitment of labour in the shipbuilding industry - to say nothing of the trade union structure - and the increased provision against the risk of unemployment, should demand fail in the future, would also be required (p.168).

Thus the issue of employment volatility and unemployment would have to be addressed by employers as a trade-off for more efficient and productive work patterns and practices. If not, restrictive work practices and the demand for (excessive) wages and penalty rates earned in overtime, weekend work and shiftwork, would continue to drive employee demands to cover substantial periods of unemployment.

4.3.2 Pay Structures and Rates

As noted, the issue of pay rates and structures was also intimately tied to the development of lines of demarcation, and were complex and a major source of conflict (Parkinson, 1960; Cousins & Brown, 1975). This stemmed predominantly from the nature of the work which involved a range of similar trades undertaking different tasks (Jones, 1957). As Thompson (1968) notes on this subject:

The wages of skilled craftsmen at the beginning of the nineteenth century were often determined less by 'supply and demand' in the labour market than by the notions of social prestige, or 'custom'. Customary wage-regulation may cover many things, from the status accorded by tradition (and) intricate institutional regulation in urban centres..... They brought their own customs with them; and no doubt these influenced wage-fixing and differentials (p.280).

The non-repetitive nature of much of the work also made the maintenance of appropriate wage and salary structures one of the most difficult but sensitive and critical tasks for shipbuilding management. As Pollard and Robertson (1979) point out:

Not only did the trades come into conflict with each other on demarcation questions, but the fact that some unions were confined to the yards or had their main strength and interests in the yards while others looked on shipbuilding as a minor source of employment at times made collective bargaining nightmarish. The inclusion of engineering shops, foundries, and other diverse facilities in some yards added further confusion and made comparisons of employment in the industry over long periods almost impossible (p.152).

The traditional shipbuilding trades generally worked on a uniform time rate (Parkinson, 1960). However, the non-shipbuilding trades such as the steel-making trades worked on piece rates, generally in squads (Knowles & Robertson, 1951; Cousins & Brown, 1975) which could be subject to and enhanced by 'lieu' rates¹⁸ of pay (Jones, 1957). In addition, semi and unskilled workers had their pay determined at a national level, and a variety of rates were paid according to the class of semi-skilled worker¹⁹.

¹⁸ Very often, both in shipbuilding and ship repairing, the work which is done by piece-working trades cannot be accurately priced either because no two jobs are exactly alike or because the work is scattered over the ship. In these circumstances traditional piecework trades are paid 'lieu' rates, an enhanced hour rate for the job, which is done at piecework speed. In all cases lieu rates have been agreed on between the employers and the workers in separate districts (Jones, 1957:179).

¹⁹ Semi-skilled - a body of men of varying experience and training with a standard of skill somewhere between highly skilled craftsmen and unskilled labourer. The functions of this class are not nearly standardised. Methods of work and equipment vary considerably, with the result that men with different standard of skill and training are employed on exactly the same work in different yards. It is therefore quite impossible to define precisely the 'semi-skilled' category and apply a standard rate of remuneration to the class as a whole (Jones, 1957:195).

Allowances (and extras) were also paid for certain jobs, because of the conditions such as confined or unsheltered space and height, subject to district or dockyard agreement (Roberts, 1967). The situation was further complicated by the fact that the work could be undertaken by any one of several trades (Jones, 1957). The whole process of wage negotiation was fragmented (Parkinson, 1960; Cousins & Brown, 1975). Because of the fragmented nature of the bargaining process and the rigid demarcation of skills both vertically and horizontally throughout a dockyard, changes in rates and differences in payment systems affected the sensitive issue of wage relativity (Parkinson, 1960). As Cousins and Brown (1975) illustrate:

The piece-work system was the cause of the superior earnings of steelworkers in the shipyard and, as such, was much resented by the non-piece-working outfitting trades (p.64).

In addition, because semi and unskilled wage rates were determined on a national level (as these employees developed their own general unions) and not tied to the relativities of the dockyard, there was a tendency for these wage rates to increase relative to those of the skilled workers (Parkinson, 1960). In addition, where the practice of granting uniform or flat-rate increases in wages across the dockyard was in place, this also had the effect of narrowing differential rates (Jones, 1957). In addition, semi-skilled and unskilled workers tended to work more overtime, which also had an effect on differential earnings (Jones, 1957). Thus the complexity of these wage rates and structures created further areas of conflict, administrative complexity and costs to manage. Changes in technology and work patterns and increased mechanisation further complicated this. As Parkinson (1960:180) argued, this area required as much revision as the issue of demarcation itself.

4.3.3 The Shipbuilding Industry and the Economic Cycles of the 20th Century

After the recession of the 1930s and the intensive shipbuilding of World War II, the world merchant shipbuilding industry entered a period of slow but steady growth in output through to the mid-1970s. For the merchant shipbuilding industry, this can be attributed to sustained economic growth. For naval production the Cold War period ensured that peace-time production was maintained at a relatively high level (Todd, 1985; Strath, 1987). The period from 1960 through to the mid-1970s came to be known as the 'bonanza years' (Strath, 1987) as the volume of sea-borne trade increased at more than 10 per cent per annum, or five-fold between 1950 and 1970 (Lorenz, 1991). Indeed, by 1970, 75 per cent of world tonnage was sea-borne (Strath, 1987). For the merchant shipbuilding industry the dramatic increase in demand and production peaked during the first economic crises of the mid-1970s. As Todd (1985) notes:

A pinnacle was reached in 1975, but by then the boom was over. The throttling of the oil trades after 1973 in conjunction with the industrial and financial crises, induced by energy politics resulted in a rapid fall-off in shipbuilding.... This period of precipitous decline in demand for shipping afflicted all shipbuilding countries (p.7).

Demand for merchant shipping declined by 45 per cent between 1974 and 1976 creating an over supply of shipbuilding capacity of the order of 50 per cent (Lloyd's Register, 1977). This slump continued through the 1970s and well into the 1980s as the effects of the second oil crisis in 1979 impacted upon a shipbuilding industry endeavouring to recover from the first wave of economic instability (Todd, 1985; Strath, 1987; Lipietz, 1987). As Figure 4.3 illustrates, world output of merchant shipbuilding declined by more than 70 per cent through this period (Todd, 1985).

The recession in traditional shipbuilding industrial regions was further exacerbated by the production shift in shipbuilding centres (Strath, 1987). Pollard and Robertson (1979) argue that rigidity of work organisation was a significant factor in this shift in production:

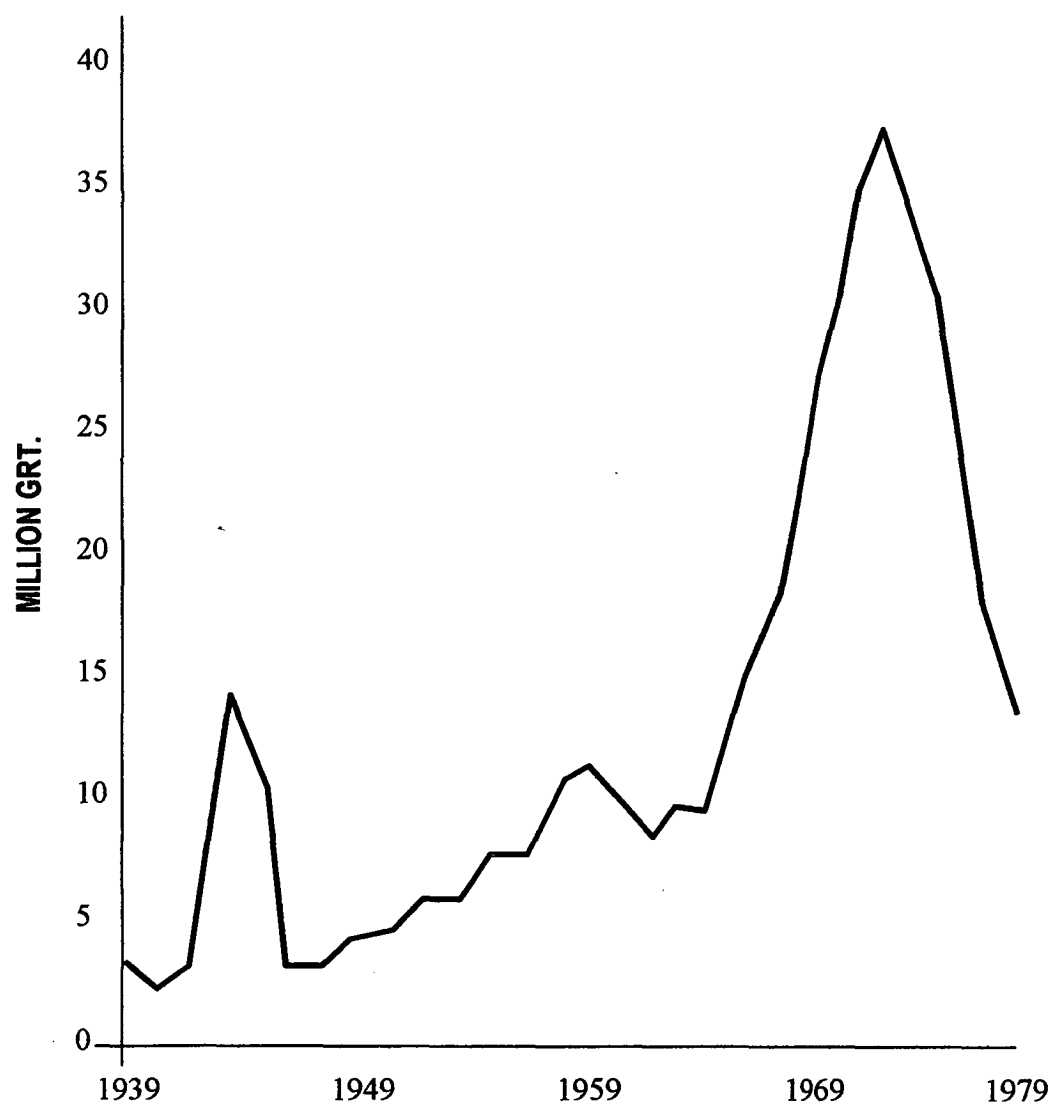
If there are rigidities within a firm or industry that limit the capacity of management to reorganise effectively, the potential productivity of new talents and machinery may not be fully realised and the rate of technological or economic progress may be reduced. As a consequence, the competitive ability of a long-established firm or industry, as against a newcomer without the burden of tradition, may be jeopardised (p151).

Japan emerged in the 1950s as the world's pre-eminent shipbuilding nation, as newly-industrialising countries, or 'third powers' such as South Korea, Taiwan and Brazil, expanded their (heavily subsidised) shipbuilding capacity to provide increased competition in a diminishing market (Todd, 1985). The continuous decline in demand in the merchant shipbuilding industry in many advanced industrial economies created structural problems that were initially ameliorated by a variety of government support mechanisms, as Table 4.1 illustrates.

The major impetus for these protective measures focused upon the retention and maintenance of an industry which was nationally important in terms of trade and employment, both directly and indirectly (through the highly dependent sub-contracting sector which developed around shipbuilding.. As noted earlier, dockyards had become assembly points as opposed to manufacturing centres). The high level of trade union density in the industry was significant as the unions provided the industry with significant political and lobbying power (Strath, 1987). In addition, influenced by Keynesian economic management policies in the

Figure 4.3 Ship Building the Global Shift

Free World Shipping Output (1939-1979)



Source: Todd, 1985:9

Table 4.1 Typology of Forms of Public Subsidy in Shipbuilding

Type of Subsidy	Practical Application
A. Protection of national markets	<ol style="list-style-type: none"> 1. Custom duties on ships 2. Import restrictions
B Direct subsidies	<ol style="list-style-type: none"> 1. Loans/grants
C Fiscal assistance	<ol style="list-style-type: none"> 1. Customs duty exemption or rebates for imported materials and parts 2. Tax exemption or rebates
D Finance for investment and research	<ol style="list-style-type: none"> 1. Facilities for the equipment of yards 2. Loans or grants for the reorganisation and conversion of yards
E General facilities for financing the activities of the yard	<ol style="list-style-type: none"> 1. Provision of guarantees of finance on favourable terms (see F.1 below) 2. Public ownership or participation
F Export credit facilities	<ol style="list-style-type: none"> 1. Provision of credit on favourable terms 2. Export credit insurance
G Assistance to customers	<ol style="list-style-type: none"> 1. Home market credit schemes 2. Demolition and/or Modernisation subsidies 3. Operating subsidies

Source Strath, 1987:13-14

1970s, many advanced western market economies identified the downturn as a cyclic fluctuation and therefore a transitory problem that needed to be bridged through government support (Strath, 1987). As Table 4.1 illustrates, the types and forms of assistance were many and varied.

With the continued and entrenched economic instability created by the second oil crisis at the end of the 1970s, a post-Keynesian era of free market economics began to emerge (Pussey, 1991). These new principles of national economic management generated a seachange in government philosophy in many advanced western market economies, and legitimised the reduction of governmental support for the shipbuilding industry (both merchant and naval). As Strath (1987) notes:

From the early 1980s onwards, as governments came to face the real impact of the international market, the industry suffered a continuous decline, and the granting of concessions.... at best only served to carve out temporary resting places on the slide to oblivion (p.220).

The period since the economic crises of the mid-1970s has been characterised in the merchant shipbuilding industries of traditional advanced industrial economies as one of long-term decline. This position has been exacerbated by the gradual removal of government support and an increase in competition from newly industrialising countries. The structural effect of this prolonged position is illustrated in Table 4.2. These figures indicate the reduction in capacity and the closure of companies and dockyards in the period 1975-1985. Significantly, the factor which allowed many of these organisations to maintain production was the protected naval/defence industry and the intervention or derived demand of governments (Todd, 1985).

However, despite the naval shipbuilding industry not being directly affected by economic instability, the ending of the Cold War, combined with the increasing expense of maintaining a naval shipbuilding industry (whether real or symbolic) under national policies of free market economics or economic rationalism²⁰ made the industry increasingly vulnerable to market forces in the traditional shipbuilding economies (Carrol, 1992). As with the merchant shipbuilding industry, this translated into a process where the state looked for ways to rationalise or divest itself of its various role as owner, customer and manager of various sectors of the economy (Quiggin, 1996). Policies were being developed to deregulate or free up these sectors of the economy (including naval shipbuilding) to the rigours of the market and free trade, thus allowing the market to increasingly determine economic requirements (Carroll, 1992; Kelly, 1992; Bell, 1993).

The effects of these new economic policies on the naval shipbuilding industry were two fold. As noted, the focus of naval shipbuilding above all else is performance-based. This, combined with the specialised nature and complexity of naval production, means significantly higher costs in the production process (Todd, 1985). With the state as owner and customer this has not been a major issue or over-riding consideration (Todd, 1985; Lorenz, 1991). Therefore, cost-effectiveness as an issue had never been a high priority. However, under the scrutiny of 'economic rationalism' and the end of the Cold War, the perceived need or demand for naval procurements significantly declined to a (relatively low) peacetime level (Todd, 1985). Thus the rigours of the market were increasingly being forced upon this sector of the shipbuilding industry.

²⁰ 'Economic rationalism' is a recent term used in Australia (and the UK) for a school of economic thinking otherwise known as 'laissez faire' or 'neo-classical economics'..... Its generative axiom is that the free market should determine all economic transactions. A prosperous economy depends on efficiency, and the greatest efficiency occurs when open competition in a free market determines outcomes. The moment outside agencies (ie governments) intervene they create distortions, and in the end lead to efficient industries being robbed in order to prop up inefficient ones (Carrol, 1992:7).

Table 4.2 The Closure of Specialist Shipbuilding Facilities (1975 - 1985)

Country	Number of Companies	Number of Berths or Docks Expunged	Capacity Removed (000 dwt)
Belgium	1	2	6
Denmark	1	1	8
Finland	1	2	6
France	7	8	>3
Ireland	2	5	>6
Italy	5	24	12
Netherlands	23	68	>76
Norway	6	11	>8
Spain	3	4	20
Sweden	6	11	553
UK	11	46	>20
W.Germany	12	37	60
Japan	7	30	>105
Singapore	2	8	6
Turkey	1	1	8
Australia	5	14	167
South Africa	2	4	35
Brazil	1	1	26
Canada	5	14	>11
USA	8	19	N/A*

* data not available

Source: Todd, 1985:266

The combination of declining demand and the free market philosophy of many governments has potentially provided the conditions, or a point in time, for the reform and restructure of the naval shipbuilding industry in many advanced industrialised nations, in order for the industry to survive in an increasingly deregulated and globalised economy. Thus, over the 160 years which constitute the modern shipbuilding era, a period or break has been identified where there is a clear opportunity to address the restrictive and uncompetitive aspects of the industry, in particular those associated with the organisation of work in the naval shipbuilding sector.

4.4 The Development of the Australian Shipbuilding Industry **(1788-1972)**

The Australian shipbuilding industry has a history dating back more than 200 years. However, in the period immediately after British settlement in 1788, shipbuilding was banned for two reasons. The first related to the issue of convict escape from the penal colony. Secondly, there was the monopoly of the East India Company over trade and shipping in the region (Hughes, 1968). However, to ensure the survival of the colony, Governor Hunter of New South Wales established the first shipyard in Sydney in 1795. The need to trade, combined with the removal of the East India Company monopoly in 1813, became the catalyst for the development of a shipbuilding industry in Australia. As Hughes (1968) points out:

Soon every little settlement which had a harbour or river was entering into a golden age of building wooden ships in Australia. The main centres were the Hawkesbury, the Hunter and the Derwent. In those days Tasmania was one of the leading shipbuilding centres in Australia (p.13).

By 1838 the Williamstown dockyard in Victoria was established and in 1840 the tonnage of the ships built in Australia exceeded 1000 tons (Hughes, 1968). From this scattering of slipways and dockyards, the development of iron ships (from the 1850s) brought about an increasing concentration of dockyards located around the major ports where the industrial infrastructure and labour was available (Hughes, 1968). Whilst the main demand during this period was for dredges, barges and tugs, naval facilities were also being developed (Earnshaw, 1998). In 1851 the New South Wales Government began construction of a naval dockyard at Cockatoo Island, which was opened in 1858. By 1890 (after the completion of the Sutherland Dock) this was the largest dry (graving) dock in the world. During this period the Williamstown Dockyard, Victoria was extended to include a patent slipway in 1856 and in 1880 Walkers Limited commenced commercial shipbuilding of steam dredges and barges in Queensland (Hughes, 1968).

Through the 20th century the shipbuilding industry developed into several large labour-intensive yards based around the major cities of Australia. Naval shipbuilding commenced in 1911 at Cockatoo Island, which was subsequently acquired by the Federal Government in 1913 under the control of the Naval Board as a Naval Dockyard (Jeremy, 1990). After responsibility for the dockyard had passed through several Federal Government Boards, it was eventually leased to the Cockatoo Dockyard and Engineering Company Limited in 1933²¹ (Hughes, 1968). In 1917, the Federal Government established its own shipping line - the Australian Shipping Line - to ameliorate war time losses. In setting up the line Hughes (1968) notes that:

The decision to set up the Australian Shipping Line was apparently taken after a lot of discussion by the then Prime Minister, William (Billy) Hughes... and some 52 organisations of labour.... it did not commence until the unions of the day had made rather startling

²¹ The Dockyard lease was subsequently taken over by the Vickers Company Limited.

concessions - dilution of labour was one, and piece rates another. Evidently under these conditions the programme went very well because between 1919 and 1924 a total of 21 vessels, mainly of the Billy Hughes D and E class (6000 tons deadweight) were built by Walkers Limited (Queensland), Walsh Island (New South Wales), Williamstown Dockyard (Victoria), Poole and Steel (South Australia) and Cockatoo Island (pp.18-19).

However, the completion of the D and E class ships coincided with a general decline in world economic activity. By 1933 (the height of the depression) there was virtually no shipbuilding being undertaken in Australia, with many yards diversifying into heavy engineering (DTI, 1975). However, from 1934, the Federal Government placed orders for new naval ships, and as the prospect of war increased by the late 1930s the Federal Government began placing orders for the conversion of merchant ships (Jeremy, 1990).

With the advent of World War II the Evans Deakin Dockyard in Brisbane and the BHP²² Whyalla Dockyard in South Australia were mobilised for the war effort to support Cockatoo Island, Williamstown and Newcastle (DTI, 1975). The BHP - Whyalla shipyard was opened in 1939. As noted, the impetus (and pressure) for its development came from the Federal Government as it prepared for World War II (Kriegler, 1980). Work began in 1939 on three slipways and a further two followed within a year (Riley, 1992). A core of skilled employees was recruited from the Clyde Dockyards in Scotland, and during the period 1939 to 1946, five Merchant Navy (River class) ships and two Royal Australian Naval ships were launched. BHP also developed a refitting facility at the dockyard, its main work being the strengthening of Chieftain Class merchant ships to enable them to support gun platforms. As Riley (1992) notes, by the end of the war Australia had developed an extensive shipbuilding capacity:

²² ¹ BHP - Broken Hill Propriety Ltd, a major Australian steel manufacturing and mining company.

By the time World War II had ended, BHP possessed the Commonwealth's largest and best-equipped shipbuilding yard..... Through necessity driven by needs of wartime, BHP's Whyalla shipbuilding venture became an established part of the Company's operations and played a leading role in the post war development of the Australian merchant fleet (p. 48).

One hundred and twenty vessels were launched during the war period and the Australian Shipbuilding Board was established (March 1941) under the National Security (Shipbuilding) Regulations to develop and co-ordinate the construction of merchant and naval shipbuilding, and to establish the industry on a major scale (Hughes, 1968).

The principal dockyards of the post-Second World War period were the Federal Government Naval Dockyards of Williamstown in Victoria, Cockatoo Island, Sydney, BHP Whyalla Shipyard, South Australia and the New South Wales State Government Dockyard at Newcastle. These dockyards provided Australia with the major quota of both merchant and naval shipbuilding requirements, although a significant proportion of both naval and merchant shipping was acquired from UK shipbuilders (Earnshaw, 1998). During the period 1945-1970 both the naval and merchant shipbuilding programs were maintained at a level not approached during any similar peacetime period in Australia (DTI, 1975). The catalyst for this was the awareness of successive federal governments of the geographical isolation of Australia (particularly evident during World War II) (DTI, 1975) and the Cold War. As Hughes (1968) points out:

During this First World War ships were subsidised..... However, after the war, when the world recession began to have an effect, prices became keener overseas but, because of the rising standard

of living in this country, the cost of Australian ships did not decline to the same extent. In Australia, the Government of the day adopted the simple expedient of buying on the best market, with the result that the Australian shipbuilding industry by 1933 had totally collapsed.... After the Second World War, the Commonwealth Government, influenced by a clear demonstration that a local shipbuilding industry was not only essential, but could be highly effective in times of world conflict, took a completely different view, and encouraged the building of ships in Australia, and their purchase by Australian ship owners by paying a subsidy.... (pp.27-28).

In this context therefore, successive federal governments supported the maintenance of an Australian shipbuilding industry (both financially and politically). Examples of this support included the Tariff Board report on the shipbuilding industry in 1955, which recommended the subsidy be raised from 25 to 33 per cent. In 1964 the Board reduced the minimum tonnage attracting assistance from 500 to 200 tons gross and the 1969 review resulted in the all ships built in Australia attracting a flat rate subsidy to a maximum of 45 per cent. In 1972 the system was again revised and the size of ship eligible for subsidy was reduced to 150 gross tons. The subsidy applied was determined by the price which would have been paid for an identical ship built in the UK (DTI, 1975). In addition, under Customs (Prohibited Imports) Regulations, ships were classed as restricted except under special permission from the Minister of State for Shipping and Transport (Hughes, 1968). From a naval perspective the federal government as owner and customer of HMA Williamstown Naval Dockyard, continued to accept increasing over-runs, poor productivity and volatile industrial relations (because of the perceived need to maintain a naval shipbuilding industry above other considerations) (Jeremy, 1990; Earnshaw, 1998).

Thus, shipbuilding in Australia through the 20th century was characterised primarily by the production of large vessels for commercial activities, typically ore carriers and oil tankers, and naval requirements. Shipbuilding for the Royal Australian Navy began just prior to World War I and concentrated on Frigate and Destroyer Class warships at the Federal Government Dockyards (although Cockatoo Island was leased to the Vickers Shipbuilding Consortium) (Jeremy, 1990). The first major expansion in the shipbuilding industry occurred in 1918, when the federal government initiated a major local shipbuilding program to alleviate Australia's wartime shipping crisis (Riley, 1992). The recession of the inter-war years severely effected the further expansion of the Australian shipbuilding industry. However, in the late 1930s this downturn in shipbuilding demand was superseded by a second federal government-led recovery as a consequence of the necessities of war. From 1945 to 1970, with the support of successive federal governments (through political and financial assistance), both merchant and naval shipbuilding was maintained at the highest level of peacetime activity in the country's history (Hughes, 1968).

4.4.1 Organisation of Work in the Australian Shipbuilding Industry

Because of the close relationship between the UK and Australia, through cultural and economic ties, there was extensive recruitment of a skilled workforce from the UK. This has provided a continuing source of skilled labour, and a major influence on the development of work patterns and practices in the Australian shipbuilding industry (Kriegler, 1980; Riley, 1992). As Hughes (1968) notes:

Because of the traditional and historical development from the British shipbuilding industry during the last hundred years, the Australian industry has inherited many of the trade practices, which have now become outmoded in other shipbuilding countries (p.30).

Specifically, the Australian shipbuilding industry inherited multiple trade unions sites, closed shop unionism, extensive lines of demarcation and the stratification of the workforce along trade lines (Hughes, 1968; Kriegler, 1980), which have all been identified as reducing resource utilisation and therefore productivity (Jackson, 1975). The number of trade unions at any one facility could range between 12 and 23. The organisation of work was further entrenched by legally binding industrial awards which outlined terms and conditions across an industry and allowances.²³ The unions also maintained a high degree of control over the apprentice system and the organisation of work which was a further legacy of UK workplace customs and practices (Kriegler, 1980). Work patterns and practices were further entrenched by the conflictual industrial relations system which was also a legacy of the British cultural influence (Bamber & Lansbury, 1998). The effect of these 'outmoded' work patterns and practices was reflected in the continual increase in federal government assistance, which was related to the cost differential between shipbuilding in Australia and overseas (see above). This point was also recognised by Hughes as far back as 1968, when he stated that:

It is essential for the future of the Australian shipbuilding industry that we reduce costs. It is a matter of survival for both employee and employer to try to streamline things as much as possible, both in design, in organisation and in trade practices (p.30).

4.5 Australian Shipbuilding after the Economic Shocks 1973 -1988

The introspective (protectionist) approach of Australian economic policy (see Chapter 3) combined with successive federal governments' consciousness of the geographical isolation of Australia in wartime, meant that the Australian merchant shipbuilding industry was not exposed to the demand cycle of the

²³ Allowances are adjustments to employee compensation to allow for variations in working terms and conditions.

market nor naval shipbuilding to a 'normal' peacetime equilibrium after a war. The post-WWII years were distinguished by stable but rising demand in both sectors (Kriegler, 1980; Jeremy, 1990). However, the world recession of the 1970s combined with a fundamental change in federal government economic policy towards industries such as shipbuilding (in particular tariff policies - see Chapter 3) exposed first the merchant and then the naval shipbuilding industry to market forces. The first signs of structural change came in 1971 from the Tariff Board which, as noted above, after almost every inquiry into shipbuilding after the WWII increased the protection to the industry. As Kriegler (1980) notes:

In 1971, the Australian Tariff Board recommended a complete reorganisation of the shipbuilding industry if it was to remain a competitor in the world market. Their recommendations included:

1. The reorganising of activities away from the construction of large vessels and towards smaller, more specialised vessels in which Australian shipyards have had a lower cost disadvantage;
2. an increase in labour productivity; and
3. an improvement in administrative, marketing and technical efficiency (p. 205).

The board recommendations (which were subsequently endorsed by the federal government) included no increase in levels of assistance and the eventual elimination of all assistance²⁴ (Riley, 1992). The repealing of protectionist industry policy revealed a shipbuilding industry characterised by obsolete plant, low productivity and an industrial relations climate of militancy and unrest (Jackson, 1975). Kriegler (1980) supports this point, noting:

²⁴ The first stage of this process was the reduction of the subsidy from a maximum of 45 per cent in 1973 to 25 per cent by 1980 (DTI, 1975).

Productivity in Australian shipyards does not compare favourably with overseas yards. In its submission to the Industries Assistance Commission's hearing into the iron and steel industry, BHP claimed that the cost of building a 13,500 tonne vessel in Australia, even taking into account a thirty-three per cent government subsidy, is more than double the lowest overseas quotation (p. 193).

Because of the lead time in shipbuilding, the consequences of the Tariff Board decision took several years to noticeably effect the industry. In 1976 the South Australian Premier's Department advised a federal parliamentary sub-committee that the local shipbuilding industry could not compete with overseas facilities, in particular the heavily subsidised dockyards of South-East Asia. This point was supported by the then Federal Minister for Transport, Peter Nixon, who stated that:

The simple fact is that ANL²⁵ can buy ships overseas for approximately \$(AUS) 9.5 million each but it would cost \$ (AUS) 20 million each (before subsidy) for them to be built in Australia (1976).

A key finding of the Tariff Board (now called the Industries Assistance Commission (IAC)) was the rejection of trade union militancy, wage levels or employees' skills, ability or attitude as the causes of the crisis in the Australian shipbuilding industry (Kriegler, 1980). Whilst protection policy exacerbated the problems, and the IAC identified that lines of demarcation were a cause of inefficiency between trades, the key focus of the crisis was the management within the industry (IAC, 1976). This is supported by the seminal work of

²⁵ ANL (Australian National Line) was maintained by the federal government and subsequently privatised in 1993.

Kriegler (1980) at the BHP the Shipyards at Whyalla - South Australia. He worked incognito on the site and interviewed a cross-section of the workforce from labourers and tradesmen to supervisors, professionals and interested third parties. On the subject of efficiency, productivity and cost advantage the following comments cited in Kriegler's (1980) work are indicative of the responses he elicited from the workforce:

A senior officer of the Whyalla Shipbuilding Division of the Federal Department of Industry described the supervision as 'deplorable'.... they are authoritarian, unco-operative and incompetent.... and run on a system of self-perpetuating mediocrity (p. 169).

Tradesmen at the yard described the following issues and incidents:

The Company's industrial officer came down and gave us a lecture on how workmen are to obey every order regardless of whether the supervisor is right or wrong (p.163).

There is no overall organisation.... I'm no longer surprised to find the same costly mistakes repeated three or four times in a row (pp. 176-177).

Professional staff in discussions with Kriegler reinforced these views:

I can't help but think that management are the real cause of the Shipyard's inefficiencies (p. 177).

The fact of the matter is that the major decision-making positions in the Shipyard are held by people who know very little (and often nothing) about shipbuilding (p.179).

It is not that the company is technologically inadequate, but its management is inadequate. Quite honestly, nobody in the yard has a great deal of respect for management. And if you have bad management, then it seems to spread right down to the workmen.... there is such a lack of communication amongst the top management (p.178).

.... honestly, they (management) spend most of their time and energy actively undermining their colleagues. They indulge themselves in secrecy and open sabotage to get ahead at all costs. That's why this shipyard seems to run from one crisis to another (p. 180).

Finally a representative of a large maritime insurance company:

..... the company had provoked industrial disputes to avoid the payment of late delivery fees to owners (p. 236).

In 1974 the Australian Industry Study Mission²⁶ was conceived by the federal government to investigate overseas shipbuilding, because of concerns regarding competitiveness, work practices and industrial relations in the domestic industry (Jones, 1975). This was the first major report on work organisation and industrial relations on the industry. The report "Shipbuilding Productivity and Industrial

²⁶ The mission observed work patterns and practices in Japan, (West) Germany, Sweden and the United Kingdom as well as Australia.

Relations in Australia” concluded that in comparison to overseas shipbuilding (DTI, 1975:3):

The productivity of the larger established shipyards in Australia is low in comparison to those successful shipyards observed overseas. The factors contributing to this are:

- restrictive work practices applied by unions
- multiplicity of unions and trades
- retention of traditional practices
- attitudes to management and labour
- poor communications between management and labour
- insufficient production planning and application of management techniques
- insufficient use of available resources and mechanisation
- non-repetitive orders for new construction
- lack of continuity of production

As can be seen from the key findings and recommendations, the “Shipbuilding Productivity and Industrial Relations in Australia” (1975) report cited the relationship between management and labour as a key area of concern in Australian shipyards. Specific recommendations included for management the development of supervisory skill such as leadership, conflict management and negotiation as well as the introduction of quality management. For the unions the report focused on the problems associated with a multiplicity of unions and calls for the unions and the ACTU to give serious consideration to the following matters:

- consideration of a 'Shipbuilding Union Confederation' for all unions engaged in the industry;
- a substantial reduction in the number of unions engaged in shipbuilding and ship repairing;
- the training of shop stewards in the importance of their representations to the management on behalf of their union and men, the economic situation of the industry, and qualities required for sound leadership;
- the agreed acceptance of technological change, new techniques and the maximum utilisation of new equipment (1974:6).

At a general level the report called for management and unions to agree on procedures to improve communication between employees and management. At the core of this recommendation was the development of a central consultative steering committee. This committee was to be made up of representative of unions and management, to develop the consultative framework of sub-committees and investigate and make recommendations on such areas as safety, personnel policy and procedures, the workplace environment and production technology (1974:7). See Appendix 2 for full account of the conclusions and recommendations of the report.

Whilst the mission was made up of government, employer and union representatives (thus indicating a level of consensus on the issues) the political environment within which this report was published in 1975 was not conducive to workplace reform, particularly on the part of the unions. In the mid-1970s Australia was entering a period of recession and beginning to dismantle the new protection model upon which the country's industrial base had been founded. The stripping away of protection mechanisms which industries such as shipbuilding had relied on to protect them from the vagaries of the market, entrenched issues such as demarcation. This was due to the characteristics of the shipbuilding

industry where job insecurity, frequent retrenchments and a lack of long-term planning or commitment by management or government ensured that unions would attempt to maintain some form of protection (DTI, 1975). In this context the report's recommendations were not taken up by management or unions with any great commitment.

The emerging global economic environment combined with the federal government's dismantling of protectionist policies exposed the uncompetitive nature of the Australian merchant shipbuilding industry. The effect of this was Australia accounting for 15 per cent of the world's lost merchant shipbuilding capacity during the period 1975 to 1985. This reduction was second only to Sweden for capacity removed (Todd, 1985). In real terms this amounted to the closure of 14 docks and five shipbuilders. Of these closures, Australia's largest private shipyard, BHP Whyalla employing 1800 workers in 1978, was the most significant and ironic. As noted above, it was government policy that had been instrumental in the development of the shipyard 'under a handsome government subsidy' (Kriegler, 1980:4). Subsequently it was a change in government policy which resulted in the closure of BHP Whyalla.

From a naval shipbuilding perspective, Macneil (1997) points out:

.... government contracts, bounties, import controls, and ownership supported inefficient operators. These factors were especially strong in the naval dockyards (p. 263).

However, the decline and change in the merchant shipbuilding industry was eventually to filter through to the naval shipbuilding industry and in particular the federal government's major naval shipbuilding facility, the industrially-volatile and highly inefficient Williamstown Naval Dockyard. As Earnshaw (1998) notes:

When the Hawke (Federal) Labour Government came to office in 1983, it was prepared to use the Williamstown Naval Dockyard to demonstrate its willingness to employ commercialisation measures to achieve public sector and micro-economic reform (p. 26).

After successive efforts through the 1980s by the Fraser and Hawke federal governments to restructure and reform the poor record of the facility to manage major defence shipbuilding projects, Australia's premier naval shipbuilding was put up for sale by tender in 1987 (Irving, 1993; Earnshaw, 1998). The Williamstown Naval Dockyard became the first public utility in Australia to be sold to the private sector. The dockyard was acquired by AMEC, a private consortium, and was eventually incorporated into Australia's largest private shipbuilder, Transfield Defence Systems (now Tenix Defence Systems²⁷). The facility is the subject of the case study research for this thesis. The focus of this research is to analyse the development of work organisation as a central factor in developing an enterprise able to compete in the highly competitive (global) defence shipbuilding market, as the facility moves from the protection of the public sector to the private sector and the rigours of the market.

4.6 Unresolved Issues in the Literature

The economic crises of the 1970s initiated a general move towards a free-market approach to the management of the economy, particularly in the public sector of many advanced industrialised economies. During this period, the shipbuilding industry entered a significant period of change (not least the introduction of competition from heavily subsidised emerging economies). The principles of market forces also extended to the once highly protected naval shipbuilding

²⁷ The change in name was a result of the division of the construction and shipbuilding facilities of the Transfield Corporation into two separate entities. The Transfield name has remained with the construction company. Transfield Defence Systems Group has now become Tenix Defence Systems Pty Ltd.

sector. This created an environment in which naval shipbuilders had to focus on increasing efficiency and productivity in order to survive in the market place. The removal of government support (combined with the ending of the Cold War) and the increase in competition from newly-industrialising countries has created a situation in which the modern shipbuilding industry (both merchant and naval) in traditional shipbuilding regions must address the issues of efficiency and competitiveness if the industry is to survive.

This context has provided the catalyst to undertake a revision of the organisation of work in the shipbuilding industry, in particular to seek more modern work patterns and practices through a consensus between management and trade unions. From the union perspective, it is in their interest to co-operate with management to develop a modern, efficient and competitive workplace that will survive the rigours of competition and market driven demand. For its part, management must be prepared to accept an increased role in the decision-making process by unions (rather than just focusing on terms and conditions of employment) to enable closer co-operation to develop and with it the opportunity to enhance productivity and competitive advantage.

However, this change in work patterns and practices requires a major revision of how work is perceived and undertaken within the shipbuilding industry. For management it means a 'root and branch' revision of the allocation of work and the employment relationship. For the unions it will necessitate a complete review of the multiplicity of unions, terms and conditions and customs and practices. Fundamentally it will require both management and labour to work together, which to be effective will require the elimination of conflict between the two parties. How this can be done effectively is a key issue that research in this area has failed to address in detail.

4.7 Summary

The shipbuilding industry in the UK and Australia from the period 1840 - 1970 was to a large extent sheltered from major internal change. Despite the move from wood and sail to iron and steam (and then steel) the high level of trade union presence and employment volatility combined with the gradual nature of change in work organisation allowed work patterns and practices to remain relatively unaltered. Extreme lines of demarcation, inefficient and inconsistent remuneration patterns and practices and the lack of uniformity in work organisation were major impediments to the efficient and effective use of both physical and human resources, the production process and completion schedules (Jones, 1957; Hughes, 1968; DTI, 1975).

From an Australian perspective, the repealing of protectionist economic policies exposed the Australian shipbuilding industry as a poorly-managed, unproductive, inefficient and industrially-volatile sector of the economy (DTI, 1975). The response by successive federal governments was to increasingly deregulate markets, as a response to an intensification of competition and market pressures. This has provided the catalyst or opportunity to reform and restructure the industry to ensure its survival. The following chapters examine the restructuring of the Williamstown Naval Dockyard as the case study research of this thesis.

CHAPTER 5

THE HISTORY AND DEVELOPMENT OF THE WILLIAMSTOWN DOCKYARD

5.1 Chapter Objectives

The objectives of this chapter are firstly to, provide an introduction to the case study organisation which is the focus of this research - the Williamstown Naval Dockyard. Secondly, a framework is erected to analyse and interpret the development of new patterns of work at the Williamstown Naval Dockyard facility.

5.2 History of the Williamstown Naval Dockyard (1838-1987)

The Williamstown Naval Dockyard facility has a history dating back more than 160 years. At a local level, it has been a major employer in the western suburbs of Melbourne. At a national level, the facility has been Australia's premier naval dockyard facility since 1941. It was also the first public sector utility to be placed for tender and transferred to the private sector in 1988. It is currently undertaking the ANZAC frigate project, which will deliver 10 frigates (with the option of an additional two) to the Royal Australian and Royal New Zealand Navies. This 15-year contract, worth over \$(AUS) 5 billion is the largest defence and engineering project undertaken in Australia.

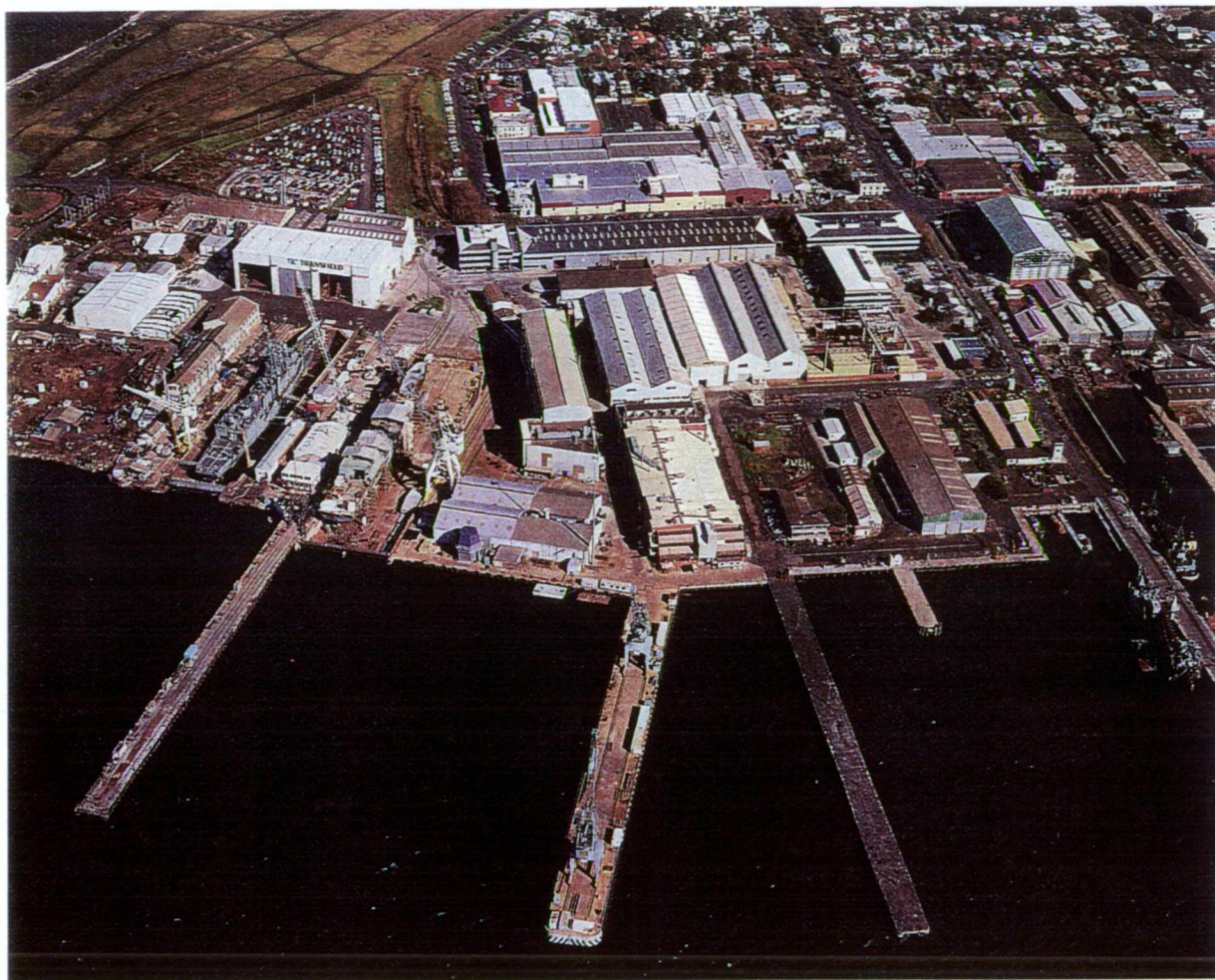
5.2.1 Location

The Williamstown Shipbuilding Facility is situated within the City of Williamstown approximately 15 kilometres south-west of Melbourne's Central Business District, on a 10.5 hectare site at Point Drake on the Gelibrand Peninsula. It is bounded by Port Philip Bay and Hobson's Bay, as Figure 5.1 illustrates.

5.2.2. The Development of the Dockyard Facilities (1838 - 1945)

The Dockyard site, named after King William IV, has a history of shipbuilding dating back to 1838, when the first slipway was constructed with warships and penal hulks as the major customers. It is worth noting that, contrary to popular belief, penal labour was never used in the construction of the dockyard (PWC, 1984; Sullivan, 1986). The Victorian gold rush and the wool trade became the catalyst for more extensive ship-repairing, docking and slips facilities in the port area of Melbourne. A patent slipway was established on the site in 1858. The slipway had been built in England for Launceston, Tasmania, and the ship carrying it called into Melbourne en route. It is believed that the Harbourmaster of Melbourne 'came to an arrangement' with the master of the vessel over several bottles of rum, and the slipway was erected at Williamstown (Hughes, 1968; Earnshaw, 1998). The next piece of infrastructure was the construction of the Alfred Graving (Dry) Dock which was completed in 1873 and opened by Prince Alfred, Duke of Edinburgh, after whom it is named (Cook, 1958, PWC, 1977). The completion of the dry dock made Williamstown the largest dockyard facility of its kind in the southern hemisphere, and the most sophisticated industrial establishment in Australia (Sullivan, 1986).

TRANSFIELD SHIPBUILDING VICTORIA



NAVAL SHIP DESIGN

SHIP CONSTRUCTION, REFIT AND REPAIR

INTEGRATED LOGISTICS SUPPORT



During the period to the end of the nineteenth century, the dockyard was host to many of the famous and infamous brigantines, barques, warships and penal hulks of the period (Elliot, 1972). The most infamous was the American Confederate warship Shenandoah in 1865 (towards the end of the American Civil War, 1861-1865). The visit laid the British government open to the charge of breach of neutrality. As Millar (1978) notes:

The Queen's Proclamation of Neutrality and the British Foreign Enlistment Act of 1819, forbade English subjects to 'equip, furnish, fit out or arm a ship that would be used against a nation with which her Majesty shall not then be at war' (p.89).

The United States government through its Consul in Melbourne, made repeated request to the Victorian government urging it to seize the Shenandoah as a pirate vessel as it had never put into a Confederate port²⁸. To ensure the neutrality of the warship whilst in Australian waters and that it would leave when requested, a 68 pound gun was mounted at the end of the slipway and directed at the ship. The United States government maintained its pressure on the Victorian government over the month that the Shenandoah was on the slip at Williamstown, in an effort to prevent the ship leaving British waters. However, on 19 February 1865, as Cook (1958) notes:

.... the vessel had her bunkers replenished and with a number of local men "shanghaied" to augment the crew, sailed away during the night and entered upon a career of piracy on the high seas (p.14).

²⁸ The Shenandoah was built in Britain under the guise of being a trading vessel. It was armed in the Atlantic Ocean and then set sail to the Pacific to attack the United States Whaling Fleet. It developed engine trouble in the Indian Ocean and decided to make for Melbourne for repairs (Millar, 1978).

The incident resulted in the British Board of Administration awarding the United States \$(US) 4 million in compensation because an armed vessel had been permitted to leave a British port to operate against the commerce of the United States of America²⁹ (Cook, 1958; Elliot, 1972; Millar, 1978; Sullivan, 1986). Another famous ship which passed through the dockyard was HMS Nelson in 1874. The more unusual work undertaken at the dockyard included the repair of the circular lighthouse when it broke from its moorings off Point Gelibrand (Elliot, 1972).

During the 1840s the Chief Harbour Master Chas Ferguson was commissioned to raise an artillery force to defend the Williamstown peninsula. As Noble (1973) notes:

Government employees at Williamstown and elsewhere, connected with the sea, were enrolled in a naval militia and trained to operate guns ashore and afloat under commissioned officers (p.88).

Ferguson was then commissioned to raise a naval brigade to be based at the dockyard. This subsequently became the naval training and depot facility HMAS Cerberus. For this reason Williamstown Naval Dockyard has been identified as the home of the Royal Australian Navy (Elliot, 1972; Sullivan, 1986).

Under the control of the Victorian State government, the shipbuilding facilities at Williamstown were upgraded with the commencement in 1911 of two slipways alongside the Alfred Graving Dock (Hughes, 1968; Earnshaw, 1998). These were opened on 7 April 1913 by His Excellency the Governor of Victoria, Sir John Fuller. With the declaration of war in 1914, the dockyard was commissioned by the federal government to convert cargo ships into troop transporters. During this

²⁹ In the nine months following the Shenandoah's departure from Williamstown she captured 38 vessels, destroying 32 (Millar, 1978).

period (1914-1918) the dockyard experienced its first major industrial unrest. As Elliot (1972) notes:

Shiftwork was introduced to keep up production but this became unpopular with those who couldn't get it, as did overtime with Melbourne's many unemployed tradesmen. These issues and others led to many stoppages (p.15).

The continued industrial unrest resulted in the federal government declining to place any further orders at Williamstown and was eventually a factor in the sale of the dockyard facilities to the federal government in 1918 (Cook, 1958). A second factor was the cessation of hostilities and the return to peacetime levels of production (see Chapter 4). The major role for the dockyard during the period 1918 - 1923 was the production of cargo ships to off-set wartime losses (Cook, 1958). However, because of the cost of ship construction by 1923 and Australia being co-signatory to the Washington Treaty⁵, the federal government discontinued the shipbuilding program. In 1923 the dockyard was sold to the Melbourne Harbour Trust, which took control of the dockyard on 10 July 1924.

Under the control of the Melbourne Harbour Trust, the dockyard diversified its operations, undertaking both naval and civilian shipbuilding work including the construction of dredges and barges and refitting Harbour Trust vessels. During this period the dockyard refitted Sir Douglas Mawson's Antarctic ship *Discovery* in 1930 and on its return in 1931 (Sullivan, 1986). It also constructed pipes for soldier settlements and undertook boilermaking for BHP. With the outbreak of World War II, the dockyard was again placed at the disposal of the federal government. Work commenced on arming merchant ships and fitting out mine-sweepers. Preparations were also made for the construction of a variety of naval

⁵ The co-signatories to the Washington Naval Treaty (1924) agreed to limit their naval forces. For Australia this meant the de-commissioning of three 'J' Class submarines. These submarines were subsequently sent to Williamstown dockyard to be broken up (Elliot, 1972).

ships. The dockyard's shipbuilding capacity was doubled in 1941 with the addition of two further slipways, prior to the Navy taking over operations from the Melbourne Harbour Trust, to form the Royal Australian Navy's major dockyard HMA Naval Dockyard - Williamstown (PWC, 1984; Sullivan, 1986). The Department of the Navy officially took control of the dockyard facilities on 28 October 1942. As well as the major role of construction and refitting for the Royal Australian Navy and merchant ships for the federal government's Merchant Shipping Program (see Table 5.1 below), the dockyard also refitted and repaired Dutch, British and United States cruisers, destroyers and submarines (Cook, 1958; Sullivan, 1986).

Table 5.1 Wartime Production at HMA Naval Dockyard - Williamstown

Ship	Type	Keel laid	Launched	Handed Over/ Commissioned
Ballarat	Corvette	16/04/40	10/12/40	30/06/41
Geelong	Corvette	16/10/40	22/04/41	16/01/42
Castlemaine	Corvette	17/02/41	07/08/41	17/06/42
Echuca	Corvette	22/02/41	17/01/42	07/09/42
Horsham	Corvette	26/06/41	16/05/42	18/11/42
Shepparton	Corvette	14/11/41	15/08/42	01/02/43
Loddon	Merchant	04/12/41	22/04/44	20/12/44
Bennalla	Corvette	24/05/42	19/12/42	27/03/43
Stawell	Corvette	18/06/42	03/04/43	23/08/43
Mitta	Merchant	22/09/42	29/04/45	09/11/45
Culgoa	Frigate	15/07/43	22/09/45	24/12/46

Source: Elliott 1972

After World War II, the federal government maintained the Williamstown Dockyard facilities for the sole purpose of naval shipbuilding, not least because it recognised the value of maintaining a naval shipbuilding capacity in Australia (Jeremy, 1990). Warships were commissioned on regular basis at the Williamstown facility and the Cockatoo Dockyard in Sydney (owned by the federal government but leased to a private company - Vickers Pty Ltd), from 1946 (see Table 5.2).

5.2.3 Organisational Performance and Industrial Relations (1946 - 1987)

Despite the regularity of shipbuilding and refitting through the post-war period to the mid-1960s, the efficiency of the dockyard was constrained by a variety of factors. The first commission to the Williamstown facility after the war in 1946, was for two Darling Class Destroyers. The completion date of 1952 was over-run by seven years. As Jeremy (1990) points out:

Delays resulted from a lack of technical information, late material and equipment deliveries, a heavy dockyard workload coupled with a shortage of skilled labour, and limitations imposed by Government on the rate of expenditure (p.2).

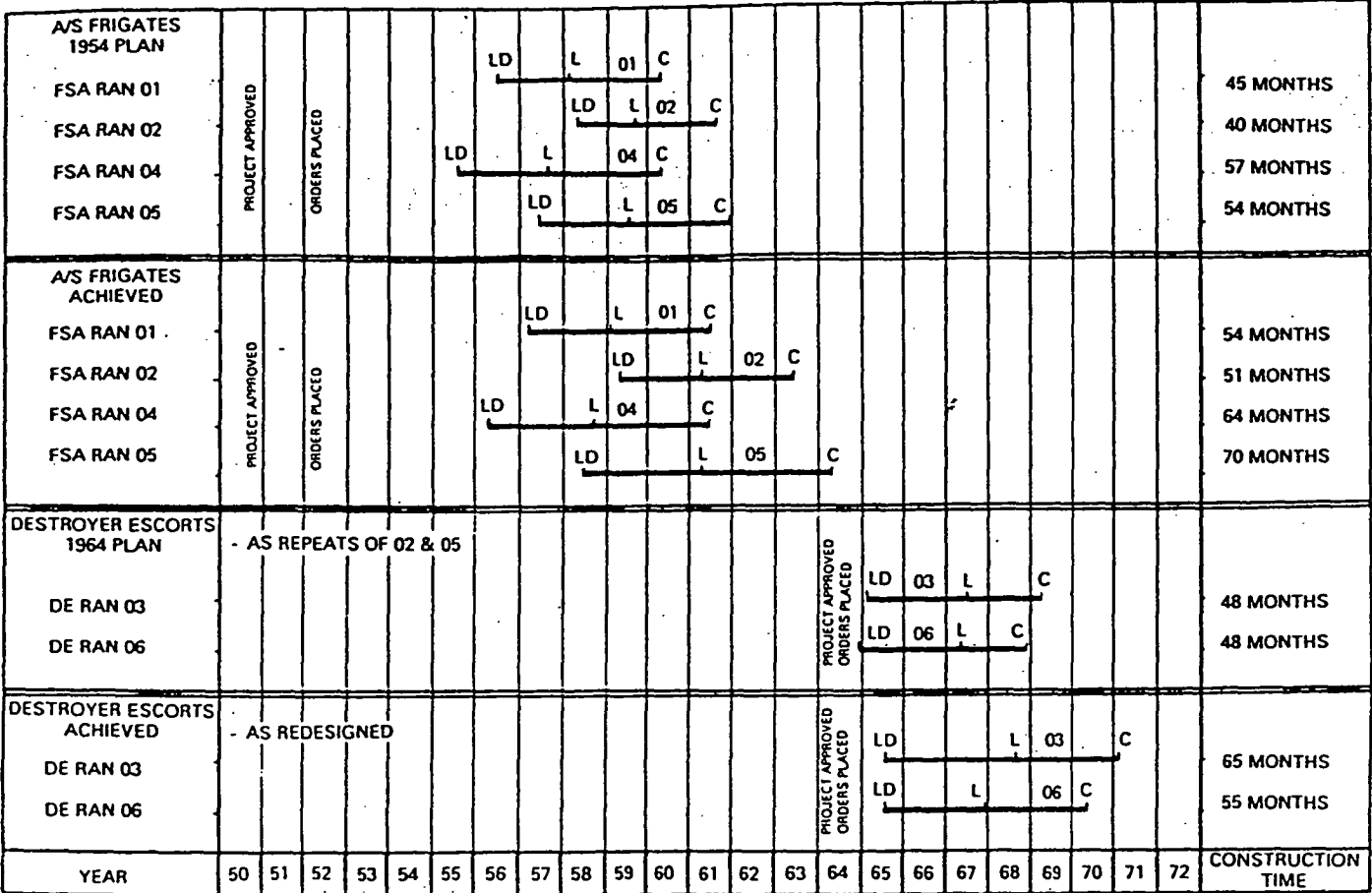
These factors created further delays in the next generation of warships, the Type 12 Destroyer Class and completion dates were continually revised by the need for technical information and equipment to suit the construction program (Jeremy, 1990:11). As Table 5.3 illustrates, the construction time for each frigate commissioned between 1946 (Darling or DD class), and 1965 (Destroyer Escort or DE class) took progressively longer to complete.

Table 5.2 Australian Naval Construction 1950 - 1972

SHIPS	NUMBER BUILT	DESIGN ORIGIN	BUILDER	1960	1970	1980	1990	2000
OVER 1000 TONNES STD. DISPLACEMENT								
Daring Class Destroyers	3	UK	Codock (2) Wildock (1)	████████				
Type 12 Destroyer Escorts	4	UK	Codock (2) Wildock (2)	-----	████████			
Type 12 Destroyer Escorts	2	UK	Codock (1) Wildock (1)	-----	-----	████████		
Survey Ship HMAS Moresby	1	Aust.	State Dockyard*	-----	████████			
Destroyer Tender HMAS Stalwart	1	Aust.	Codock	-----	████████			
Oceanographic Ship HMAS Cook	1	Aust.	Wildock	-----		████████		
Amphibious Heavy Lift Ship HMAS Tobruk	1	UK	Carrington Slipways Pty Ltd	-----		████████		
Fleet Underway Replenishment Ship HMAS Success	1	France	Codock	-----			████████	
FFG 7 Class Frigates FFG 05 & 06	2	US	Wildock (Aust. Marine Eng Corp)	-----			████████	████████
Submarines Type 471	6	Sweden	Australian Submarine Corp.	-----				████████
Anzac Frigates FFH 01 to 12	12	Germany/ Holland	AWS or AMEC Cons.	-----				████████
* No longer in shipbuilding (1988)								
UNDER 1000 TONNES STD. DISPLACEMENT								
General Purpose Vessels	2	Aust.	Walkers Ltd *	-----	████████			
Attack Class Patrol Boats	20	Aust.	Walkers Ltd (10)* Evans Deakin Ind. Ltd (10)*	-----	-----			
Landing Craft Heavy	8	Aust.	Walkers Ltd *	-----		████████		
Hydrographic Ship HMAS Flinders	1	Aust.	Wildock	-----		████████		
Fremantle Class Patrol Boats	14	UK	NQEA	-----		████████		
Inshore Minehunters	2	Aust.	Carrington Slipways Pty Ltd	-----			████████	
Inshore Minehunters	4	Aust.	Carrington Slipways Pty Ltd	-----			████████	
Survey Motor Launches	4	Aust.	EGLO Engineering Pty Ltd	-----			████████	
Pacific Patrol Boats	12 (export)	Aust.	Australian Shipbuilding Industries Pty Ltd	-----			████████	

Source: Jeremy, 1990.

Table 5.3 Australian Type 12 Frigate Construction Programme



SHIP NAME		LAID DOWN	LAUNCHED	COMPLETED
01	PARRAMATTA (Codock)	3-1-57	31-1-59	4-7-61
02	STUART (Codock)	20-3-59	8-4-61	28-6-63
04	YARRA (Wildock)	30-4-56	30-9-58	25-7-61
05	DERWENT (Wildock)	16-6-58	17-4-61	30-4-64
03	TORRENS (Codock)	18-8-65	28-9-68	18-1-71
06	SWAN (Wildock)	18-8-65	16-12-67	17-4-70

Source Jeremy, 1990

However, as Elliot (1972) comments: 'Very little modernisation of equipment and procedures used in the dockyard has taken place for a number of years' (p.17). Indeed Earnshaw (1998) argues that this, combined with the poor industrial relations record, accentuated the problems, cost and risk in placing orders with the dockyard. These factors were considered major determinants in the Whitlam federal Labor government's (1972-1975) cancellation of the next generation of naval ships - the fast combat support ships and light Destroyers in August 1973 (Earnshaw, 1998). In their place, orders were placed for 4 DDG Class Destroyers from the United States Naval Shipbuilder Todd Pacific, based in Seattle. However, the future of the dockyard appeared to be secured when the federal government Parliamentary Standing Committee on Public Works recommended a three-stage modernisation program of the Williamstown Dockyard facilities in the same year. The focus of the modernisation process was four-fold:

- increase the range of functions performed at the dockyard;
- enable the government to continue to build naval vessels in Australia;
- retain and develop strategically important shipbuilding skills;
- maintain and increase employment. (1973:7)

The main features of the three-stage modernisation process were: Stage one - new facilities for hull construction; Stage two - outfitting facilities, storage, training; and Stage three - provision of weapons and electronic workshop (PWC, 1984). In 1977 the function and role of the Dockyard within the defence strategy of Australia were re-defined by the "The Parliamentary Standing Committee on Public Works". In the application for stage two of the modernisation of the Dockyard, the committee established that Williamstown Naval Dockyard was to assume the position of strategic importance as:

- (a) The specialist yard for in-country construction, major conversion and modernisation of combatant ships of the Darling Class/Destroyer Escort type.
- (b) The main refitting dockyard for the smaller sizes of Royal Australian Navy destroyers.
- (c) The provision of a maintenance base facility for patrol boats in Victoria.
- (d) The refitting of all support craft in the Victorian area.
- (e) Installation and repair of specialised Naval equipment in shore establishments in Victoria.
- (f) The provision of stores facilities.
 - (i) Dockyard requirements for construction and refitting.
 - (ii) Ship requirements for ships staff work during refits.
 - (iii) Fuelling and Defuelling (1977:2).

By the late 1970s and continuing through the 1980s the Williamstown Dockyard was experiencing major problems. Productivity loss attributed to industrial unrest had reached 10 per cent per annum and management-workforce relations had deteriorated to the extent that the workforce voted to sack management (Boyle, 1985). In addition, the dockyard was identified in a Royal Commission to be the centre of fraudulent work practices associated with the Painters and Dockers Union of Australia. The Royal Commission, chaired by the prominent lawyer Frank Costigan, into the activities of the Painters and Dockers Union identified the Williamstown Naval Dockyard as a focal point of corruption and inefficient work practices. Costigan paid particular attention to the 'Goings-on' at Williamstown and noted in his report:

Williamstown Naval Dockyard

I received evidence disclosing extensive frauds practised by members of the Union against their employers (Williamstown Naval Dockyard). The frauds were varied in type, widespread in number and practised by many. The frauds practised included lying to gain employment and receive a higher wage, fraudulent time-keeping practices, the fraudulent practice of ghosting - that is to say, working under more than one name and receiving more than one pay packet from the same or other employers at the same time, the fraudulent taking of leave, fraudulent workers' compensation claims and theft. I undertook a very detailed study of the relationship between the employer and painter and dockers in respect of the Williamstown Naval Dockyard..... In my first Interim Report I detailed my study of the dockyard. The criticisms I made included that of the manipulation of the workers' compensation scheme by the Union members.

It was clear that the dockyard has passed over to the Union responsibility for employment of painters and dockers; such employment was controlled solely by the Union and the employer was either unable or unwilling to play any part in it. The simple fact was that when a person was referred to the employer for employment by the Union the member obtained employment irrespective of any other consideration (1984:12-13).

Referring to the security process for these new employees (in the context of the dockyard being a high security defence facility), Costigan (1984) said the following:

It was a misuse of the English language to describe this system as involving security checks: it should have been called an insecurity system (p.13).

In addition Costigan (1984) noted that:

..... It was clear that unpopular foremen - those seeking to enforce some discipline on the painters and dockers - were subjected to harassment and violence to their property. The Union members ruled the roost to the ultimate detriment of the whole yard..... In mid-1981 a fraud was uncovered which involved the use of forged medical certificates by members of the Union. As a result, a full investigation was carried out by Australian Federal Police, prosecutions commenced and a number of painters and dockers were forthwith dismissed from the yard (p.14).

This condemnation of work practices at the dockyard by the Interim (Costigan) Royal Commission, and the facility's continual poor performance, including cost over-runs, and industrial unrest, became the catalyst for the Fraser federal Coalition government (1975-1983) to initiate a Committee of Inquiry into the Dockyard. The Committee was chaired by Mr Ross Hawke, former General Manager of the BHP Shipyards at Whyalla in South Australia. The Committee findings were tabled in the House of Representatives in 1982. Although in the main the recommendations of the Committee were rejected by the Fraser government, in particular the main point of making the dockyard a 'statutory

body' directly accountable to the Minister for Defence, the report refocussed attention on the inefficiencies operating within the facility.

The report was especially critical of the management of the dockyard by the Navy, with support from the Department of Administrative Services. This position was corroborated by the 'Hawke' report (as it became known) quoting from a previously secret report compiled a year earlier by a Joint Management Review of the Dockyard which stated "The Joint Management Review team place responsibility for most of the problems at the dockyard squarely upon poor management" (cited in Pinwall, 1982). In the area of industrial unrest, the Committee of Inquiry placed the responsibility on both management and the workforce. In summing-up the standing of the Dockyard, the report stated "The dockyard had fallen into a state of shambles" (cited in Pinwall, 1982). This position is supported by Earnshaw who notes that:

Part of the inefficiency was Defence's Head Office interference in dockyard management autonomy, particularly in personnel employment and dismissal matters (1998:123).

Whilst the 'Hawke' report was rejected by federal cabinet, it again highlighted the Dockyard's inefficiencies and continued industrial unrest. This created uncertainty as to the future of Williamstown as Australia's premier naval shipbuilding facility, particularly with the imminent decision by the federal government to commission two FFG Class frigates (later named Melbourne and Newcastle). The 'Hawke' report had judged that, whilst technically capable of undertaking the frigate project, the industrial environment was 'missing'. It could not therefore recommend the project be allocated to Williamstown under the existing conditions (Committee of Inquiry, cited in Elias 1983).

Realising the situation they now faced, Dockyard management and trade unions undertook several initiatives to reduce conflict at the yard. The first major initiative was the 1983 industrial agreement between management and the ACTU. The aim was to develop a joint management-union committee for health and safety, which was often an area of major conflict (Irving, 1993). The improvement in productivity and industrial relations at the Dockyard was reflected in a submission by the General Manager Mr Bruce, to the Costigan Royal Commission on the Painters and Dockers Union in 1983. Mr Bruce indicated that while there was still industrial unrest at the dockyard, substantial improvements had been achieved over recent years. This included a reduction in working-hours lost through industrial disputes of more than 85 per cent in the previous three years as Table 5. 4 indicates.

Table 5.4 Working Hours Lost at Williamstown Naval Dockyard (1981-1983)

Year	Man-hours lost
1981	19 600
1982	12 135
1983	2 854

Source: Costigan Royal Commission 1984

This argument appeared to have influenced the committee, as in his final report Costigan notes with regard to the Williamstown Dockyard:

This shake-up of the workforce is bound to have led to some improvements in the painters and dockers section of the yard. I received further evidence on behalf of the management of the dockyard in April 1983. This referred to 'significant management changes' (1984:14).

Despite the increased productivity and harmony at the Dockyard, the new Federal Labour government's Minister for Defence, Mr Scholes, indicated that the FFG frigate contract might still go abroad, specifically to Todd Pacific Shipyards in the USA. This would primarily be because of the poor industrial relations climate and the poor record of managing major defence shipbuilding projects at Williamstown (cited in Balderstone, 1983). Indeed, not taking into account the likelihood of delays and extensions, "The cost of local construction for two Frigates was estimated at about \$(AUS)228 million, compared with \$(AUS)175 million from Todd Pacific Seattle" (Earnshaw, 1998:26). However, Mr Howe, Defence Support Minister, made a statement to the press indicating that the contract would be granted to Williamstown if reforms had progressed sufficiently (Howe, cited in Balderstone, 1983).

Progress on workplace reforms had obviously been made to the satisfaction of the Federal government, as Williamstown was awarded the naval contract in late 1983, thus maintaining a naval shipbuilding capacity in Australia. As Earnshaw (1998) comments, this latter point was most likely the key consideration:

.... Australian industry and Defence will realise the benefits of indigenous design and a significant workload that creates the critical mass necessary for sustained cost effective warship construction and support, only if Australian industry is productive and competitive (p.24).

This decision was supported by the Federal Government Defence Committee which acknowledged that the choice between construction of the new FFGs in Australia or overseas would have strategic implications for the maintenance of an Australian capability to build modern warships (Earnshaw, 1998). It is also important to note that the continuing issues of organisational performance and employment relations and practices were becoming a key consideration in debates on the future of the dockyard. This highlights a key criterion upon which further naval production was to be judged. The granting of the project to Williamstown was subject to one major clause that the Dockyard unions and management and the ACTU sign a formal work agreement to control work practices and industrial action. As the then Defence Minister Scholes commented:

Future operations of the dockyard would depend on the agreement being adhered to. The agreement means work done on time.... there had been some very serious problems in local construction of vessels for the Navy in recent years. But changes in management and work practices had led to a marked improvement in the dockyard's performance on naval repair and refit work (cited in Balderstone, 1983).

Underlying these issues was a change in the new federal Labor government's attitude to the dockyard, as Earnshaw (1998) comments:

When the Hawke Labor Government came to office in 1983, it was prepared to use the Williamstown Naval Dockyard to demonstrate its willingness to employ commercialisation measures to achieve public sector and micro-economic reform (p.26).

One recommendation from the Committee chaired by Ross Hawke that was acted upon during this period was the transfer of management of the dockyard from

naval to civilian control. This was completed in June 1984. Work commenced on the Australian Frigate Project in March 1985, marking the start of the first warship construction project at Williamstown since the mid-1960s. In winning the order, the dockyard was provided with a further \$(AUS) 40 million to upgrade its facilities (Noble, 1985).

However, despite the reduction in industrial action and a changed management structure, increased productivity through workplace reform had failed to increase the dockyard's international competitiveness (Earnshaw, 1998). This was highlighted in December 1985 when the Navy threatened to withdraw HMAS Derwent from the facility because of continuous and unacceptable delays (Cummings, 1986). The Derwent had been in the yard for over four years (twice the time originally scheduled). HMAS Derwent was subsequently released after a four week 'speed-up' of work-in-progress (Cummings, 1986).

The cost of maintaining the Dockyard facility, or the '*Iron Lung*'³⁰ as it had become known, continued to cause the federal government problems. The financial liability to the federal government in 1984 was \$(AUS) 15 million, increasing to \$(AUS) 18 million in 1985 (Schauble, 1986). By 1986, the production schedule for the FFG frigates had fallen nine months behind schedule and cost overruns were starting to mount (Earnshaw, 1998). In order to increase the dockyard's competitiveness, in March 1986 the Minister for Defence, Kim Beazley, announced 345 jobs were to be cut at the Dockyard.

Without reductions in the workforce, high costs would remain, thus reducing the possibility of winning the work needed to maintain future employment. Closure would then be the ultimate possibility (Beazley, cited in Nagy, 1986).

³⁰ A reference to the oxygen chamber used to keep a person alive.

In particular, work organisation was targeted as a major problem area by the Defence Minister Beazley,:

During the past decade, staffing imbalances have developed and work practices have arisen, resulting in excessive costs..... Management and industrial practices have not kept pace.... as a result, productivity has fallen and heavy subsidies have been needed, this has been a serious strain on the defence budget (cited in Schauble, 1986:19).

The dockyard trade unions attempted to resist this proposal, providing damning evidence of the quality of management as the major factor in the dockyard's failure to meet international standards. A Report of the Sub-Committee of the Combined Unions' Shop Committee into work practices at the Williamstown Naval Dockyard featured examples of delays caused by management. These included:

- No 'argon gas' available in January 1986 because management had not paid bills, resulting in no deliveries;
- No 'flux' available for submerged arc welding, resulting in a job taking four welders four weeks instead of one welder one week;
- Steel plates taking more than one month to come from the Port Melbourne store to the dockyard (a journey of approximately 5 kilometres);
- The electrodes store running out of electrodes leaving welders nothing to do for two days;
- Four welders and two boilermakers waiting two days to begin a job because there were no safety boots, tool boxes, welders' bags, chipping hammers or any basic tools (Donohoe, 1986).

This report failed to deter the government and in July 1986 a further 291 dockyard workers were retrenched. This cost-cutting exercise failed to prevent further financial losses by the dockyard. These exceeded \$18 million in 1986 (Schauble, 1986). The continued losses by the dockyard resulted in consideration of its sale to private enterprise in March 1987 as part of the Federal Government Expenditure Review Committee terms of reference. This was considered the preferred option ahead of the alternative of closure (Earnshaw, 1998). The underlying catalyst for this change in the federal government's stance on the dockyard was the continual lack of international competitiveness, at the core of which were inefficient work practices (Irving, 1993). This was highlighted by the Australian Frigate Project completion date slipping a further 16 months behind schedule by mid-1986 (Earnshaw, 1998).

Although attacked by the trade union movement, consideration of the sale of the dockyard went ahead. On 1 April 1987, Defence Minister Beazley announced the sale of the Williamstown Naval Dockyard and called for tenders. This was to be the first privatisation of a public utility in Australia, and was seen as a last ditch effort by the federal Labor government to create an efficient and productive dockyard (Greene, 1987). As noted above, it also supported the determination of the federal Labor government to employ commercial measures to achieve competitiveness (Earnshaw, 1998). In supporting this sale Defence Minister Beazley stated:

Performance has continued to fall short of the yard's own commitments, and even further behind what might be expected from comparable yards.... It has been obvious that for the Williamstown Naval Dockyard to survive in the tough world of shipbuilding, it had to be removed from under the Public Sector structure (cited in Gleeson, 1987).

Significantly, trade unions at the Dockyard and the ACTU agreed to co-operate with the sale process. The ACTU's position was that it was not opposed to the privatisation of the dockyard because of its poor industrial record and despair in almost all quarters at resolving the problems while it remained in the hands of the federal government (Richardson, cited in Carunan 1987).

The State Secretary of the Amalgamated Metal Workers Union (AMWU) John Halfpenny, stated that:

.... most of the workers were relieved that something had been decided about the yards. All unions would cooperate provided there was full consultation and no loss of jobs or conditions (Cited in Davis, 1987).

A delegation of unions represented at the dockyard met Defence Minister Beazley to discuss the issues of the Dockyard's transfer to private enterprise. Despite this, the workforce was dissatisfied not only with the decision of the federal government, but also the role the trade union movement had taken. Frank Milne, President of the Combined Shop Stewards Union Committee stated:

The members have lost some faith in the union. Last year we were told by management, the Government and the ACTU that 300 workers had to go to trim a bit of fat off. But now we're looking at a change of ownership and further retrenchment (cited in Arnold, 1987).

By the closing date for invitations to bid for the Dockyard facility in May 1987, a total of 13 organisations and consortiums had registered their interest with the federal government to acquire a controlling interest. These were (Australian Financial Review 1987a:5):

- A consortium comprising Transfield, Australian National Industries (ANI) and Amalgamated Wireless Australasia Pty Ltd (AWA) in NSW.
- Eglo Engineering Pty Ltd, NSW.
- Behnfeld Corporation through Allied Technology International Pty Ltd (ATI), Queensland.
- British Aerospace Australia Pty Ltd, South Australia.
- A. Goninan and Co Ltd, NSW.
- Wormald International Pty Ltd, NSW.
- Australian Shipbuilding Industries (WA) Pty Ltd, in conjunction with the Bond Corporation and the Hyundai Corporation of South Korea.
- ICAL/Thorn EMI (Australia)
- Australian Shipbuilding Industries (WA) Pty Ltd.
- Clough Engineering Pty Ltd, WA.
- North Queensland Engineers and Agents (NQEA).
- The Australian Marine Engineering Corporation (AMEC) NSW.
- ICAL(Sydney) - and Technav in association with Byvest (Sydney).

The principal determinant for such a strong field (considering the dockyard's recent history) was current and future naval commissions. As well as completing the two frigates under construction at Williamstown, the winning consortium/organisation would be in a strong position to procure the contract for construction of at least half the 12 proposed ANZAC class warships to be built for the Australian and New Zealand Navies over the next two decades. In addition, the recent modernisation of the Dockyard made it the only Australian dockyard facility to be registered with the Standards Association as having the necessary expertise to build weapons combat systems in Australia.

Of the interest groups bidding for the Dockyard, the most unanticipated was the Technav consortium, which was made up of senior technical staff at the Williamstown Naval Dockyard, backed by 100 fellow workers who pledged financial support in the buy-out (Botten & Gleeson, 1987). In July the Ministry of Defence narrowed the tender to four bidders:

- A consortium comprising Transfield, Australian National Industries (ANI) and Amalgamated Wireless Australasia Pty Ltd (AWA) in NSW.
- Clough Engineering Pty Ltd, WA.
- The Australian Marine Engineering Corporation (AMEC)
- ICAL(Sydney) - and Technav in association with Byvest (Sydney).

The tender was subsequently reduced to two in August 1987 (Australian Financial Review 10 July 1987b):

- The Australian Marine Engineering Corporation (AMEC).
- ICAL(Sydney) - and Technav in association with Byvest (Sydney).

On 12 December 1987, the Federal Government announced the sale of the Williamstown Naval Dockyard for \$(AUS) 100 million to the Australian Marine Engineering Corporation (AMEC). The AMEC consortium was made up of Perth-based Australian Shipbuilding Industries (ASI), the Adelaide-based engineering project management firm Eglo Engineering, and the Sydney-based heavy engineering and transport group ICAL. Agreement on staff management had been reached in talks between the ACTU, on-site unions, government departments and the new owners, AMEC. The ACTU spokesman on dockyard matters, Mr Bob Richardson, said the successful AMEC tender bid had the support of both the ACTU and the Combined Unions' Shop Committee, which represented the 10 blue-collar unions at the dockyard (cited in Humphries, 1987). He said both organisations supported the AMEC bid on the basis of its frank

approach and innovative plans (Richardson, cited in Humphries, 1987). The Acting General Manager of the Dockyard, Mr Cowe, stated:

It (Williamstown Naval Dockyard) was sold into the hands of private enterprise to free it from Government constraints. The shackles under which it was operating included tortuous purchasing procedures and drawn out employment procedures (cited in Humphries, 1987).

The transfer of the Williamstown Naval Dockyard took place on 1 January 1988, and the contract to complete the construction of FFG 05 (Melbourne) and FFG 06 (Newcastle) was signed on 4 February 1988.

5.2.4 Australian Marine Engineering Corporation (AMEC)

During the period of negotiation for the ownership and transfer process, a restructuring of the AMEC consortium itself was in train. Prior to AMEC's purchase of the Dockyard, the Transfield Group bought one of the consortium partners, Eglo Engineering. In February, ICAL acquired the other partner in the consortium, ASI, in the face of competition from the Transfield Group. In the space of eight weeks, the consortium had been completely re-modelled, as both Transfield and ICAL fought for complete control and ownership of the dockyard facility (Gill, 1990). The federal government was reported as declaring to the management of the dockyard that the ownership problem risked damaging its prospects for the ANZAC frigate contract (Humphries, 1988a). A Defence Department source was quoted as stating:

We've told AMEC that we wouldn't sign a contract with them until the matter of ownership is settled. In the worst case scenario, we wouldn't know who we were negotiating with and who was going

to take responsibility for what was produced (cited in Humphries, 1988a).

The restructuring and negotiating continued through to May 1988, by which time Transfield had acquired total ownership of the Dockyard. In August 1988 the Transfield group renamed the Dockyard the Australian Marine Engineering Corporation (shortened to AMECON). In 1990, AMECON was fully integrated into the parent shipbuilding operation Transfield Shipbuilding Pty Ltd, Australia's largest shipbuilder.

5.2.5 The Transfield Organisation

Transfield was formed in New South Wales in 1956 by two Italian engineers, Franco Belgiorno-Nettis and Carlo Salteri. From single contracts for BHP at Port Kembla through bridge building, aeronautical projects, transmission lines and steel fabrication, Transfield by the 1980s was Australia's largest engineering enterprise (Insite, 1991). The group structure after the acquisition of the Williamstown Naval Dockyard from the period 1990-1996 consisted of four divisions: Shipping, Technologies, Civil Construction and Corporate Services. These four divisions were coordinated through an umbrella organisation, Transfield Holdings Board. Transfield Shipbuilding Pty Ltd consisted of three business units: Fremantle - Western Australia, which specialised in small vessel manufacture; Whangarei - New Zealand, which is designed to build ship sections; Williamstown - Victoria, which was the headquarters for the shipbuilding division as well as the central construction facility. This is where the ANZAC frigates were to be assembled and launched. In addition, the Williamstown site incorporates the Defence System facilities.

In 1996 the Transfield group began a process of restructuring and disaggregation along business and family lines. The construction and shipbuilding sectors of the business were divided into two distinct and separate entities. The construction business, trading as Transfield Construction Pty Ltd, was run by the Belgiorno-Nettis family, and the shipbuilding business, trading as Transfield Defence Systems, was under the guidance of the Salteri family (Lynch, 1996). The renaming of the shipbuilding division as Transfield Defence Systems Pty Ltd, emphasised the refocussing of the business into defence systems and technology to complement the naval shipbuilding.

The restructure was a result of a key organisational issue, the realisation or acknowledgment that the businesses were becoming too diverse and complex to compete effectively in their respective (dynamic) markets. As Lynch (1996) reported:

.... a short statement issued on the 23 of March outlined the “amicable” decision to divide the assets into construction and infrastructure business and a shipbuilding and defence business.... But business sources, confirming that the separation was friendly, said it had been driven by the diverging business interests of the two group managing directors, Mr Marco Belgiorno-Zegna and Mr Paul Salteri.... the Salteri family taking on the defence activities and the Belgiorno family taking infrastructure and operations.... (p.1).

This strategic restructuring continued within the shipbuilding division as the organisation developed from ship construction focus to a multi-project organisation tendering for a variety of defence contracts both nationally and internationally (especially South-East Asia) (Johnson, 1996). In this context, on February 10 1998, after the completion of the disaggregation of the two

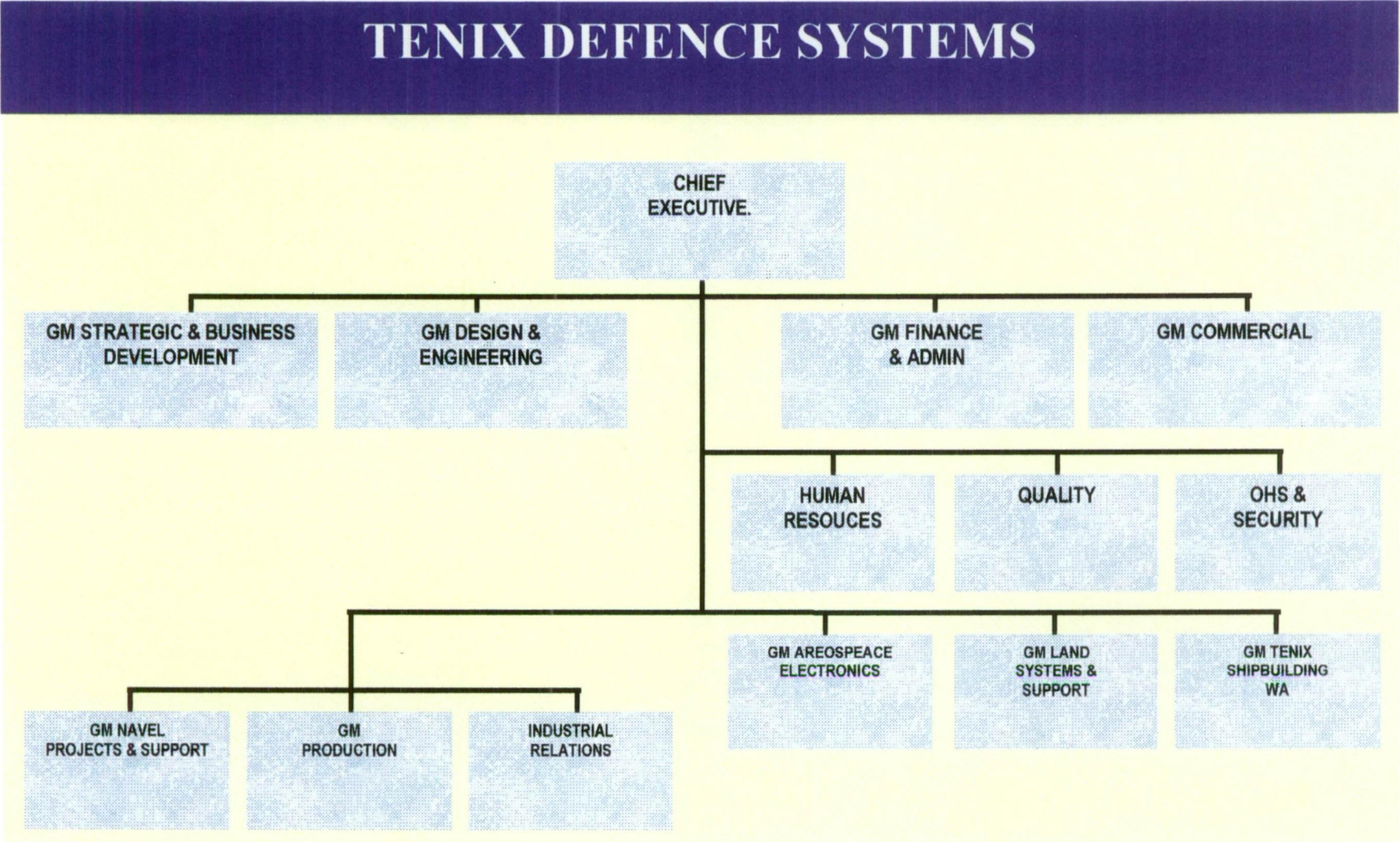
Transfield businesses, Transfield Defence Systems Pty Ltd was renamed Tenix Defence Systems Pty Ltd (TDS). The major change in the organisational structure has seen the traditional functional structure being supplanted by the establishment of four separate business units: Major Naval Projects and Support; Aerospace and Electronics; Land Systems and Support and Tenix Shipbuilding (WA). As Figure 5.2 illustrates, these strategic business units are supported by a core central services unit.

5.3 Unresolved Issues in the Restructuring of Work at the Williamstown Naval Dockyard

The Williamstown naval Dockyard has had a long and checkered history, which in many respects reflects the nature of the industry. Since 1946, as Australia's premier naval shipbuilder, it gained a reputation as being industrially volatile and notorious for its poor productivity record. These issues have been well documented through Royal Commissions of Inquiry, federal government reports and the media, and eventually provided the catalyst for privatisation in the late 1980s.

This decision was considered the only option other than closure. This was the first public utility to be privatised in Australia, and can be seen to be at the vanguard of an agenda of micro-economic reform by successive federal governments since the early 1980s to develop a competitive industrial base in an increasingly globalised economy. As such the decision to privatise from a long-term perspective is important in terms of outcomes. To date only limited research has been undertaken on this major event (mainly linked to the ABPDP). The overall process of re-structuring to compete in a highly competitive global market has not been addressed in the literature.

Figure 5.2 Tenix Organisational Chart



5.4 Summary

The Williamstown Naval Dockyard has had a turbulent history of industrial volatility and productivity problems. However, whilst the blame for this can be placed upon management, trade unions and successive federal governments, these issues were not addressed with any urgency. This resulted in the dockyard being described varyingly as the worst worksite in Australia, a shambles, the iron lung and a byword for industrial strife (Boyle, 1985).

The increasing uncompetitiveness of the dockyards in the 1980s and the change in government philosophy towards the efficiency of public utilities saw the federal government firstly move to reform the dockyard and then divest itself of all responsibility by placing it for tender in 1987. The transfer of the Williamstown Naval Dockyard to the private sector thus provided an opportunity to assess the restructuring of the facility which now competes in a highly dynamic and competitive environment without the support of the federal government acting as a 'safety net'. The following chapters analyse the changes that have taken place at the dockyard with particular emphasis on the changes in the organisation of work. Secondly, the implications of these changes with regard to organisation efficiency and competitiveness will be analysed.

CHAPTER 6

RESEARCH DESIGN AND METHODOLOGY

6.1 Chapter Objectives

The objectives of this chapter are threefold: firstly, to state the rationale for this research through the research question and propositions. Secondly, to explain the research methodology framework adopted in this thesis. Thirdly, to outline the process and protocol of the research methodology which guides this research, defining the procedures used to collect and analyse the data.

6.2 Rationale for the Research Design

This thesis is concerned with the relationship between new and flexible patterns of work organisation and enterprise performance. The literature review of work organisation identified an increased interest in and importance of the development of integrative flexible patterns of work and quality management as a means of increasing enterprise efficiency and effectiveness (Atkinson, 1984; NEDO, 1986; Hill, 1991; Legge, 1995). What also emerged from this literature review was a series of unresolved issues which highlighted the lack of empirical research assessing the development, influence, growth and importance of these work patterns and practices at the level of the enterprise (Meulders & Wilkins, 1987; Bamber et al, 1992). As Blyton and Morris (1991), note:

A number of writers have commented on the need for greater empirical studies of flexibility. What is needed in particular is more case studies of individual organisations and industries to examine

trends in different contexts, the underlying cause of changes taking place and the extent to which change is unified or fragmented, and short or longer term. In this way a clearer picture can be assembled of the reasons for and extent to which labour flexibility is being pursued, the main elements of that flexibility, and its wider implications for both management and labour (p.9).

This lack of empirical research extends to the Australian environment. In an Australian context, the major research in the area of new or emergent patterns of work has focused on the macro-level through analysis of labour market trends (Rimmer & Zappala, 1987; Harley, 1995). The impact of new or flexible patterns of work at the level of the enterprise has yet to be fully evaluated, despite the debate in the literature (Atkinson, 1984, 1985; Pollert, 1988; Mathews, 1989; Burgess, 1997). This position is supported by Bamber et al (1992) who note:

There has been relatively little empirical analysis of the manifestations and outcomes of flexibility in Australia. In view of the impact of flexibility on policy debates, there is a clear need to undertake empirical analysis aimed at redressing these problems (p.6).

The emphasis of this research is therefore to contribute to this process of learning - in the context of new and flexible patterns of work organisation - at the level of the enterprise.

◦

The purpose of this thesis therefore is to undertake an exploratory empirical investigation into the relationship between new and flexible patterns of work and enterprise performance using the framework of the flexible firm model developed by Atkinson (1984).

Building on the review of the literature (in the previous chapters) on the organisation of work, this thesis aims, through a major case study, to provide an exploratory study of the relationship between the development of emergent patterns of work organisation and enterprise performance. The focus of this research is the analysis and assessment of a large Australian organisation which has been repositioned from a stable protected domestic market to a dynamic and changing international environment. The research examines through an in-depth investigation how this organisation has restructured its work patterns and practices to move from being notoriously considered - Australia's worst worksite - to a world competitive organisation. These work patterns are explored in the study and categorised under the headings:

- **Quality;**
- **Industrial Relations;**
- **Work Practices;**
- **Human Resource Management.**

Building on existing knowledge this thesis allows for an in-depth examination of the development of the type and extent of work patterns and practices as they evolved through the framework of the flexible firm model. It also provides an analysis of the factors and determinants influencing or inhibiting the development of these work patterns and practices. The in-depth and qualitative nature of the case study research method allows the researcher to investigate the influence of internal and external variables on the development of work patterns. Whilst acknowledging that the researcher's own perspective and beliefs will have had some influence on the development and interpretation of this research, the use of multiple sources of data and references ensures this effect is limited (Keen, 1991; Denzin & Lincoln, 1994).

The contextual analysis underlying the review suggested that a combination of external factors (government policy, market conditions etc) and internal factors (management, industrial and employee relations etc) are influential in the development of specific patterns of work. It is important therefore to include these variables in the analysis to allow for a more in-depth understanding of the research data (Denzin & Lincoln, 1994). As Kirk and Miller (1986) have noted, this strengthens and validates the conclusions that can be drawn from a record of events. It also limits the problems associated with researcher bias (Miles & Huberman, 1994). The exploratory nature of this research, and the unresolved issues developed from the literature review, required the development of a question and propositions that, at one level were specific enough to focus on the development of work organisation, and also broad enough to reflect the context and dynamic nature of the environment within which the case-study organisation operates. To this extent the following Research Question and Propositions were developed.

6.3 Research Question

Analysis of the literature on work organisations suggests the need to develop an indepth study of work patterns and practices. The purpose of this study therefore is to examine the emergence of flexible patterns of work using the flexible firm model as a framework of analysis. A qualitative approach was adopted, in order to explore the process of work restructuring. The Research Question and Propositions are:

Research Question.

To what extent do the structures of the enterprise studied reflect the framework of the flexible firm model of work organisation ?

Given the integrative nature of the model to be fully effective four related propositions were identified as relevant to this research and investigated in this thesis. These propositions are shown below:

Proposition 1

In a competitive environment an organisation will seek to enhance employee skill levels through planned investments in training and development.

Proposition 2

In a dynamic environment, where product quality and reliability are key issues, the greater will be the need to develop organisational policies and practices which emphasise an integrative approach to work patterns and practices.

Proposition 3

At the level of the enterprise the combined use of new and flexible patterns of work will measurably increase resource utilisation and effectiveness.

Proposition 4

The development of a flexible organisational structure will allow management to reconfigure the organisation to take advantage of changing market conditions.

In examining the research question and propositions identified above, the thesis will investigate:

- An organisation which has undergone significant change;
- The environment within which the enterprise to be studied operates, including industry characteristics;
- The workplace relations, policies and practices within the organisation;
- The role of interested third parties.

Whilst the question and propositions are not exhaustive, they allow for the parameters of the study to be defined. This ensures that while the analysis is comprehensive, the research remains focused and manageable (Miles & Huberman, 1994). In this context, the research question and propositions are designed to focus this exploratory research and highlight the key issues and factors affecting the development of emergent work patterns and practices at the level of the enterprise.

6.4 Research Methodology

The research methodology required to undertake this research needs at one level to be able to facilitate the exploration of emerging work patterns within a complex and dynamic organisation, and at a second level be able to undertake a theory-testing approach to the theoretical constructs identified and discussed in the literature review - the flexible firm model. In this context, research indicates that the case study methodology is the preferred strategy for contemporary research within an organisational setting (Morgan & Smircich, 1980; Dyer, 1984; Eisenhardt, 1989, 1991; Yin, 1994; Larson & Lowendahl, 1996). Whilst

there is extensive debate on the appropriateness and rigour of qualitative methodology (Dyer, 1984; Storey, 1992; Hamel, Dufour & Fortin, 1993; Lee et al, 1996), Miles and Huberman (1994) argue that because of the complex nature of case study research and lack of control the researcher has, rigorous data management is even more important in qualitative analysis than it is for quantitative research. Supporting this point Yin (1993:3) notes: “The case study is the method of choice when the phenomenon under study is not readily distinguishable from its context”. In concurring with Yin, Lee (1999:54) argues that case study research is most suitable for a ‘real-life’ testing of existing theory, as it is best suited to examining why and how contemporary organisational phenomena develop in a situation where the researcher has minimal control over the situation.

6.4.1 Establishing the Basis for Case Study Research

The importance of case study methodology has re-emerged in recent years in the field of organisational research (Hamel et al, 1993; Larson and Lowendahl, 1996). Lee (1999) argues this has occurred because of the suitability of case study methodology to addressing the complexity and dynamic nature of organisational research. In such an environment standard experiments are generally seen as impractical or required to be exceptionally complex because of the requirements of control and manipulation of variables.

By contrast, case study methodology allows the context of organisational analysis to be integrated with a long-term approach to the research. First, case study methodology provides the opportunity to use multiple sources of data to capture the dynamics of a changing organisation as well as the role and perspectives of the stakeholders as they interact, evolve and change over time (Larson, 1993; Miles & Huberman, 1994). Second, the case study strategy is especially appropriate in new areas of research, allowing for the generalising of theory (Eisenhardt, 1989). In the context of this research, this refers to the

development of emergent patterns of work organisation. Third, the case study approach is especially useful where the research focus is exploratory and theory-testing (Yin 1994). Fourth, the case study approach builds on the processes within the organisation being analysed and allows for the investigation and appraisal of causal relationships between theory and practice (McCutcheon & Meredith, 1993). Fifth, case study research allows for noteworthy events involving workplace reform and restructuring over time to be analysed and the context to be understood. Sixth, case-study design acknowledges the 'open-ended' nature of social science research, allowing for more effective research and understanding of the situation(s) (Morgan & Smircich, 1980). Within the scope of this research, these criteria are particularly important in that both the case study organisation and the external environment are in periods of dynamic change. As Michelson and Baird (1995) point out:

The context of industrial relations in Australia is undergoing rapid and significant change and has led to a proliferation of research areas. The degree to which case studies are currently addressing a host of industrial relations topics, such as workplace change, union restructuring, management strategy, occupational health and safety, new technology and enterprise bargaining and its labour market implications, suggests..... it is both timely and appropriate..... (p.127)

The focus of this research within a complex and dynamic environment supported the use of the case study as a method of research. As Dyer (1984) argues: "Descriptive theory demands descriptive research. For the most part, this means intensive case studies employing long-term or retrospective design" (p.167). It is only through this approach to data collection and analysis that the contextual elements of the research can be understood and incorporated into the study.

6.5 Conduct of the Research

The research followed the protocol recommended by Yin (1994) and comprised the following stages:

1. **Review of the literature.** Chapter Two provides a review of the literature in the area of work organisation and emerging themes in this research.
2. **Developing a Case Study Protocol.** A protocol was established for the case study research. The protocol involved gaining access to the organisation and authority to collect data, develop interview questions and undertake interviews (noting that this is an organisation in the defence industry and therefore security and access parameters were important issues to be clarified). In addition the case study protocol provided guidelines for the case study report and analysis. The protocol provides a frame of reference to guide the research and address the potential weaknesses and limitations cited in the use of case study analysis, in particular the predominance of qualitative data, the difficulty of replicating the research and the issues of validity and reliability.

The theory-testing and exploratory approach combined with the extended time frame of this case gives a broad foundation to the study and provides the basis for comparing and contrasting the changes in the organisation of work. It also facilitates the development of the chain of events which provides a contextual understanding of the issues and process within the case study site.

3. **Interview Format.** This was the major source of information for this investigation, providing both primary information and guiding the researcher

in developing further and more in-depth research into the case study organisation. A semi-structured approach was taken to the interview format.

4. **Selection of Case Study Organisation.** A single in-depth case study approach to the research was undertaken. The selection of an appropriate case requires an organisation that represents a critical test of existing theory, a unique event or a revelatory case to observe and analyse a new phenomenon. The selected case study organisation encompassed all these criteria.
5. **Gaining Access to the Case Study Organisation.** A formal approach was made to the case study organisation and permission granted to undertake research.
6. **Researching the Case Study Organisation.** The research took place over a five year period and used a variety of sources.
7. **Analysis of Data Collection.** All the interviews were written-up immediately after discussion. Where possible triangulation of the data was undertaken by undertaking interviews with a variety of staff on each visit to the facility. This was identified as an important step in enhancing the reliability and quality of the information.
8. **Case Analysis and Theory Testing.** This was the final phase of the case study analysis. The focus was on assessing the change in work patterns and practices through the framework of the flexible firm model.

Each of these aspects is discussed in detail below.

6.5.1 Review of the Literature

A comprehensive review of the literature on the organisation of work provided a theoretical basis and contextual framework for the investigation of the development of work organisation at the Williamstown facility. This review of the literature clearly identified a number of factors, internal and external to the enterprise, which influenced the organisation of work. The conceptual framework developed by Atkinson (1984) was recognised as an appropriate framework for interpreting the development of flexible patterns of work at the level of the enterprise.

6.5.2 Development of a Case Study Protocol

The role of the case study protocol is to provide an overview of the research, the procedures followed and the case study questions. As Yin (1994:63) notes, this is “a major tactic in increasing the reliability of case study research and is intended to guide the investigator in carrying out the case study”. Case study protocol also directs the investigator to potential problems and issues, including the research process and addressing the case study target audience in a planned and systematic way (Yin, 1994). This is important in directing the focus of the research and providing a blueprint for those wishing to understand how the research was undertaken. It also facilitates the possibility of replication. An overview of the major aspects of the case study protocol is outlined below. The full protocol is detailed in Appendix 3.

Overview of the Case Study Research

The objective of this case study is first, to develop a contextual framework and an understanding of the factors which influenced the development of work patterns and practices. Second, as Dyer (1984) has noted, it is important in case study research to develop a retrospective approach to the research. Therefore, this case study provides an opportunity to identify the development of these

new patterns of work and their relationship to the conceptual framework of the flexible firm over an extended period.

6.5.3 Interview Format and Case Study Questions

As Yin (1994) notes, “The heart of the protocol is a set of substantive questions reflecting the actual inquiry” (p.69). The question and propositions developed for this research were generated from the literature review and through discussion first with academic colleagues - particularly colleagues at the National Key Centre in Industrial Relations at Monash University, which was undertaking research into the Australian Best Practice Demonstration Program. As noted in Chapter 3, the dockyard was one of 43 organisations chosen to participate in the program. Second, there was input from public servants involved in the defence area and the ACTU as representative of the trade union movement in Australia.

There were two reasons for taking this approach to data collection. First, there were a variety of sources of information which needed to be progressively pieced together in order to fully understand the organisation of work within the dockyard. Second, the data on the development of work organisation is broad and complex and unlikely to reside with one particular set of employees or at a specific level within the organisation. Whilst middle and senior management provided the main source of information on what changes took place, it was the supervisors, trade union representatives and general employees who provided information on the outcome of these changes. Similarly, outside sources such as the trade union movement, government agencies and customers provided an unbiased confirmatory source. This allowed the investigator to confirm and ‘fill-in’ gaps in the analysis and reconstruct a coherent set of events. This is important because it is possible that within the enterprise there may be various problems or issues regarding work organisation and performance that require further investigation.

In terms of validity and reliability, these multiple sources forced the researcher to return to material gathered and to interrogate it in new ways, based upon information from a different perspective. This process also facilitated the construction of new themes and relationships, as previously unclear relationships were identified and explored. Initially, a structured list of questions was developed for the interviews, however, this proved to be too rigid in relation to the rich and varied information the various informants provided and was replaced by a semi-structured approach focusing on specific issues and themes surrounding the dockyard. In addition, many interviews based at the dockyard had to be rescheduled or undertaken in a series of shortened interviews and conversations due to time constraints on these informants. However, at least one extensive interview was undertaken with each of the managers identified in Table 6.1 with a series of shorter interviews and follow-up conversations as and when required.

6.5.4 Selection of a Case Study Organisation

The nature of this research is exploratory and theory-testing, focusing on the complex implementation of new methods and techniques of work organisation as a way of increasing organisational performance. The selection of an appropriate case requires an organisation that represents a critical test of existing theory, a unique event or a revelatory case to observe and analyse a new phenomenon. In other words, the study requires an organisation which has experienced significant change (Dyer, 1984). A single case-study approach to the research was adopted, as the organisation selected encompasses all these criteria and was therefore an appropriate unit of analysis. In addition, the complex and in-depth nature of the research does not lend itself to experimental or survey research (Lee, 1999).

Table 6.1 Details of Interviewees at Williamstown Dockyard (Staff)³¹

Position	Organisation	Additional Information	No of Interviews
Employee Relations Manager	Dockyard	Employed pre-privatisation	6
Human Resource Manager	Dockyard	Joined immediately after privatisation	4
Human Resource Officer	Dockyard	Primarily involved in the training and development	2
Project Manager ANZAC ships	Dockyard	Employee since 1964	5
Planning Manager	Dockyard	Employee since 1968	4
Manager R & D	Dockyard	Work history in UK dockyards	2
Manager Treasury	Dockyard	Employee after privatisation	5
Accountant (Treasury)	Dockyard	One of the first graduate recruits	12
Senior Manager	Dockyard	Employed through AMEC as part of the first group of managers to reconstruct the dockyard's processes and policies.	3

³¹ Note - During this period of data collection a variety of (6) white and (5) blue-collar employees were also interviewed informally mainly off-site. These background interviews confirmed and enriched the research process. However, in terms of assessing the restructuring process these interviews provided limited insight into the restructuring of work patterns at the dockyard.

The case study organisation investigated was the Williamstown Naval Dockyard. The main rationale for undertaking a study of this organisation was that this was a unique research opportunity, as access had been made available to this high security defence industry contractor and it was the first federal government public utility to transfer to the private sector in Australia. In addition, the organisation undertook fundamental reform and restructuring of its work patterns and practices, thus providing an opportunity to test theories of work organisation. The final reason for the use of the single case study approach is that the case in question has a revelatory perspective. The dockyard provides an opportunity to examine changes in the organisation of work on a 'brown-field site' as it restructured to compete effectively in the new economic environment in which it was placed. The changes undertaken transformed the dockyard from what was once described as Australia's worst worksite (White, 1983), to an acknowledged best practice site through its involvement in the Australian Best Practice Demonstration Program and quality accreditation to international standards. This approach to studying an organisation which has experienced extreme change is supported by the research of Eisenhardt (1989) who points out:

.... given the number of cases which can usually be studied, it makes sense to choose cases such as extreme situations and polar types in which the process of the interest is "transparently observable". Thus the goal of theoretical sampling is to choose cases which are likely to replicate or extend the emergent theory (p.537).

The single case study exploratory approach also allows for a more in-depth analysis of the practices, policies and processes which influenced the development of specific patterns of work as the organisation experienced change (Dyer, 1984). It also allows the entire organisation to be investigated in

depth and allows for greater attention to detail. This focused attention allows the researcher to study events in detail, identifying inter-relationships and how they influence the overall organisation and outcomes (Zikmund, 2000). This highly focused in-depth investigation allows for a broader understanding of the complexities of the organisation and its environment. Consequently, a single case study approach can provide greater opportunity than other methods of research to obtain a holistic view of the organisation under investigation. Gummesson (2000) describes this as a Holism approach to research:

[Holism] consists of breaking down the object of the study into small, well defined parts. This approach goes all the way back to the seventeenth century and the view of Descartes and Newton that the whole is the some of the parts. This leads to a large number of fragmented, well-defined studies of parts in the belief that they can be fitted together, like a jigsaw puzzle to form the whole picture (p.86).

In this context, a single case study seeks to obtain a holistic view of the research. As Gummesson (2000) argues, because of the time-consuming nature of this form of research it is generally not possible to carry out more than one in-depth case study. A further strength of the single case format is as Yin (1994) comments:

The use of a single case study exploratory approach or objective is to pose competing explanations for the same events and to indicate how such explanations may apply to other situations (p.5).

Under such detailed investigation, theories of the organisation of work can therefore be confirmed, challenged or extended within this detailed analysis

(Miles, 1979; Eisenhardt, 1989; Yin, 1994). In undertaking a single case study approach to this research, it is acknowledged that criticism has been made as to the limited application of atypical results or outcomes of this approach. However, as Michelson and Baird (1995) argue:

In many instances, case studies involve a thorough examination of a single event or organisation and, as such, are often regarded as providing results with limited applicability. What do the results based on findings from a single case reveal about how widespread a certain phenomenon is? However, the erroneous assumption underlying this question is that research should be able to generalise, in a statistical sense, from a case study's set of findings to the broader context in which the research is conducted The logic of case study research is its ability to be analytically representative, whereby the case, which may be an ideal or atypical type of a wider phenomenon, clearly reveals confirming or conflicting evidence. In this way, the case researcher is generalising about theoretical propositions (p.128).

The single case study therefore allows the development of plausible explanations and the understanding of causal relationships, providing the analysis with wider significance in terms of generalisable principles (Hartley, 1995). It is particularly useful in a social science context, where research often aims to compare theory and practice (Van Maanen, 2000). This is because as Alloway (1977) argues, the conceptual and descriptive richness of data gathered enables the researcher to assess the applicability of the findings (practice), to the expectations (theory). This is an important point in the context of generalisability of single case study research. As Normann (1970) has argued, it is quality rather than quantity that is the determining factor of generalisability.

If you have a good descriptive or analytical language by means of which you can really grasp the interaction between various parts of the system and the important characteristics of the system, the possibilities to generalise also from a very few cases, or even one single case may be reasonably good. The possibilities to generalise from one single case are founded in the comprehensiveness of the measurements which makes it possible to reach a fundamental understanding of the structure, process and driving forces rather than a superficial establishment of correlation or cause-effect relationship (p.53).

In addition the use of a single case study approach also provides the opportunity to critically examine a conceptual framework (McCutcheon & Meredith, 1993), in the case of this thesis, the flexible firm model.

The Organisation as the Unit of Analysis

The single case study approach of this research allows for a defining of the boundaries of the study and control of “extraneous variations... and clarifies the domain of the findings” (Eisenhardt, 1989:536). Whilst the case study organisation under both public and private ownership had been part of a larger organisational structure, the Williamstown Naval Dockyard had to all intents and purposes functioned as an autonomous unit. This is reflected in the presence of senior executives and autonomous financial and employee relations functions within the organisation structure. The relative autonomy of the dockyard also provided the opportunity for centralised data gathering and effective triangulation of the multiple sources of data.

6.5.5 Gaining Access to a Case Study Organisation

As Loftland and Loftland (1984) have identified, a key factor in developing high quality case study research is the ability to gain access to the organisation. Preliminary discussions were undertaken with the Human Resource Manager and Employee Relations Manager³² at the Williamstown Dockyard. After several telephone conversations, a meeting was arranged at the dockyard to outline the research proposal, the focus of the case study and the format. Formal acceptance was given for the case study to be undertaken and free access was given to the researcher's activities within the dockyard, subject to permission from the respective area in which the research was undertaken. As noted above, as a federal government defence contractor, the issue of restricted access to certain areas and information was discussed prior to any research taking place. Interviews with staff took place in various departments and organisational levels throughout the dockyard.

6.5.6 Researching the Case Study

A central theme in the development of a quality exploratory case study is to ensure that the criteria of construct validity, external validity and reliability are achieved in framing the research (Yin, 1994). *Construct validity* is the ability to use multiple sources of evidence, develop a chain of events and have the case study reviewed by key informants. As Yin (1994) comments, "a major strength of case study data collection is the opportunity to use many different sources of evidence" (p.91). The arranging of events in chronological order to determine causality and the use of triangulation further enhances the construct validity of case study methodology. As Eisenhardt (1989) comments "...the triangulation made possible by multiple data collection methods provides stronger substantiation of construct and hypothesis" (p.538). Triangulation therefore

³² See appendix 3 for documentation.

allows the sources to be compared to identify whether they support, corroborate or contradict each other. As Blaikie (1991) notes:

(triangulation) overcomes problems of bias and validity....the deficiencies of any one method can be overcome by combining methods and thus capitalising on the individual strengths (p.115).

The implementation of external validity and reliability are also important for framing case study research. *External validity* is the extent to which inferences from the case study can be transposed to other studies (Sommer & Sommer, 1991). This is often cited as a weakness in case study methodology (Stone, 1978). The application of triangulation and the generalisability of the flexible firm model to the impetus for workplace restructuring across industries in many advanced industrial economies, allows this case to be readily generalisable. The academic and practical interest in workplace reform is readily identifiable through the extensive literature at a micro-economic level in the area of deregulation of industrial relations and the labour markets as well as the implementation of the programs such as Australian Best Practice Demonstration Program. At a macro-level the reduction of restrictive trade barriers and practices can be identified in this context (see Chapter 3).

The case study protocol developed provided the framework to ensure *reliability*. The structured format and the availability of a variety of data sources on the Williamstown Naval Dockyard pre and post-privatisation provided the opportunity for the research to be replicated in the future (Yin, 1994:36). The use of multiple sources of data allowed for the focus to remain on testing existing perspectives on the organisation of work whilst remaining receptive to other influences and possibilities. In this way a process of pattern-matching was undertaken to determine how closely the restructuring reflects traditional work patterns and practices, or embraces emergent and flexible

patterns of work organisation - reflected in the flexible firm model - and the effect of restructuring on organisational productivity and efficiency.

The technique of pattern-matching allows for empirical-based patterns of work organisation to be investigated in relation to predicted theoretical perspectives (Trochim, 1989). This approach is well suited to the development of the new paradigm of work organisation proposed as the case study organisation has been in the process of major internal restructuring due to its market repositioning and the use of the flexible firm model as a framework within which to examine these changes (Mathews, 1989, 1994; Procter, 1994 et al; Emery, 1996). The detailed nature of this single case study approach also facilitates the extensive testing of pattern matching through detailed observation of the characteristics of the organisation, to see if they correspond with the model under examination - the flexible firm or core- periphery model (McCutcheon & Meredith, 1993). As Yin, (1994) points out:

.... with a single case study, the successful matching of the patterns to one of the rival explanations would be evidence for concluding that this explanation was the correct one (p.108).

The evaluation of the case study within the context and framework of the flexible firm model allows for generalisability of the results to the growing research literature in this field of management research. As Yin (1994) comments:

[pattern-matching] requires the development of rival theoretical propositions - important characteristics of these rival explanations that each involves a pattern of independent variables that is mutually exclusive. If one explanation is valid, the other cannot be. The presence of certain independent variables precludes

another. The concern of the single case study analysis, however, is with the overall pattern of results and the degree to which a pattern matches the predicted one..... With a single case study, the successful matching of the patterns to one of the rival explanations would be evidence for concluding that this explanation was the correct one and that the other explanations were incorrect (p.108).

The review of the literature (see Chapter 2) identifies and differentiates between traditional and emergent patterns of work, with the flexible firm model proposed as a new paradigm of work organisation reflecting an increasingly dynamic and volatile environment. In this way, distinctions can be drawn between patterns of work organisation and whether or not these work patterns and practices reflect and interpret the flexible firm model.

6.5.7 Collection of Data

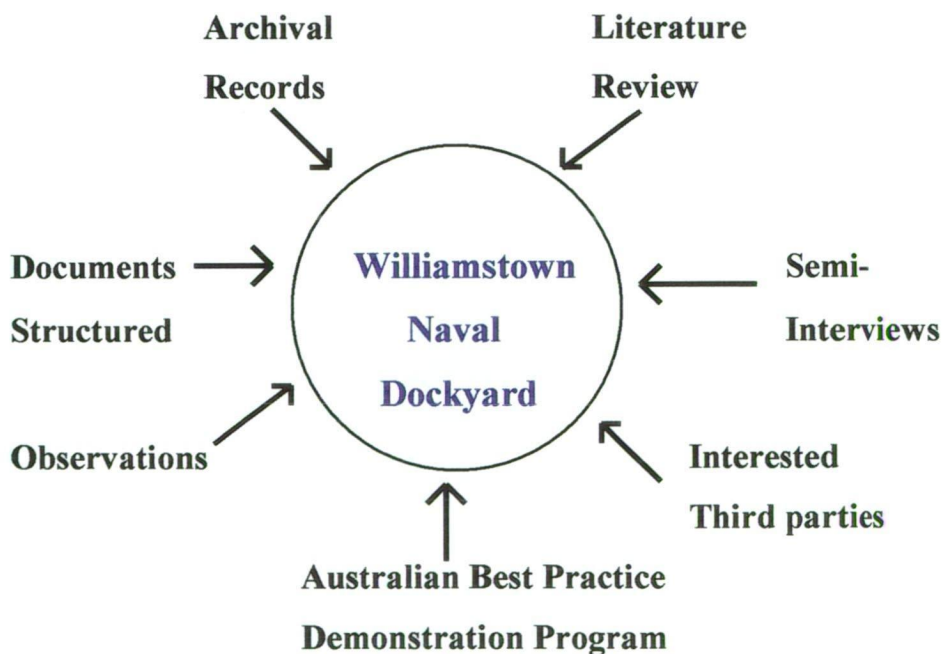
The investigation of the Williamstown Naval Dockyard utilised multiple sources of data collection. Yin (1994:78-90) identifies six major data sources:

- **Documents**
- **Archival Records**
- **Interviews**
- **Direct and Participant Observation**
- **Physical Artefacts**

Whilst Yin (1994) notes this list is by no means exhaustive, what is particularly significant is the highly complementary characteristics of these sources of information and “a good case study will therefore want to use as many sources as possible” (Yin 1994:80). As shown in Figure 6.1, this study utilised four of the six major sources identified: Documentation, Archival Records, Interviews and Direct Observation.

Documentation. This is an important source of research data collection, particularly when undertaking qualitative research such as a major case study. Documentation is useful in establishing, corroborating or contradicting evidence from other sources (Yin, 1994). In the context of this case study research, the main sources of documentation included all levels of government reports, organisational annual reports, in-house circulars as well as publications, newsletters, press statements, marketing videos and lecture notes (from the Australian Best Practice Demonstration Program). Permission was given by the company to use in-house documents for this research. Because of the large volume of data collected through these sources, the researcher followed the recommendations of Miles and Huberman (1994) and developed extensive notes and a coding system to manage the data.

Figure 6.1 Multiple Sources of Data for this Research



Source: Adapted from Yin 1994:94

An additional source of information was the Australian Best Practice Demonstration Program. As noted in Chapter 3, of the 463 applicants to the program, the Williamstown Dockyard was selected as one of the 43 participating organisations. The documentation of this program and the processes involved provided useful research material and insight into the restructuring of the dockyard

Archival Records. The extended nature of the study, and the fact that the dockyard was a federal government utility, meant that archival records were of particular importance (and availability) in building a contextual understanding of the complexities and dynamics of the organisation. This was particularly the case since the Royal Australian Navy took over the management of the dockyard in 1941. It also supports Yin's (1994) recommendation that establishing a chronological chain of events enhances construct validity.

The main documentation sources include Commonwealth of Australia Parliamentary Standing Committee Reports, Royal Commission of Inquiry Recommendation, journal articles and workplace agreements. The Williamstown Library was also an invaluable source of archival information, providing extensive historical accounts and records of events surrounding the dockyard. The ACTU's role over an extended period, and in particular in reforming and restructuring of traditional industrial relations and work patterns and practices through interaction with the individual trade unions, identified it as a further source of information. The State Library of Victoria also provided useful background information. In addition, the turbulent history of the dockyard is well documented in a variety of (quality) media outlets including newspaper archival documentary and interview footage held by the Australian Broadcasting Commission. These sources provided further understanding of the context of restructuring and changes undertaken at the case study site and the

wider external influence at play. As noted above, the large quantity of data collected in this process required the development of a coding system to manage the information.

Case study questions and interview structure. Interviews were initially carried out with the Human Resource Manager and the Employee Relations Manager. The Employee Relations Manager was of particular importance in that he had been at the dockyard through the transition from public to private ownership and was personally involved in the restructuring process. This provided a significant insight into the reforming of the dockyard at an early stage. Interviews were undertaken across the workforce. The initial selection of personnel in each area was based on longevity of service. Particular focus was placed on those employees who had worked at the dockyard under both public and private ownership. Because of the conflict and hostility generated by the restructuring process and the sensitivity of several of the issues discussed, anonymity was guaranteed to all interviewees. Initially a structured interview questionnaire was developed for this research. However, in undertaking the interviewing process this was quickly modified and a semi-structured approach was undertaken in which the key areas identified in the research questions and propositions were introductions to the topic areas.

Interviews were carried out over a period of five years. Initial contact was made in May 1995 and final interviews took place in February 2000. The details of those interviews are shown in Tables 6.1 and 6.2. These interviews provided the core of informed knowledge and insight on the dockyard. The cross-section of interviewees allowed for the checking of possible inconsistencies and bias (Yin, 1994). In addition, past employees were interviewed where this was possible. Supervisory staff, trade union representatives and third parties including a representative of the Department of Defence who were central players in negotiating the restructuring and the development of new workplace

practices and agreements were also interviewed. This cross-section of interviews provided a broad range of information and insight into the reform process at the dockyard.

The majority of interviews were of a semi-structured format. As noted, whilst a structured set of questions was developed from the literature review, because of the nature of the research - exploratory and theory-testing - the need to maintain an open approach to the research meant that a semi-structured format was preferred (Merton, Fiske & Kendall, 1990; Rubin & Rubin, 1995). However, focused questions regarding the nature, patterns and practice of work organisation were addressed to guide the discussion and to ensure consistency within the analysis.

It is acknowledged that this source of information is open to individual interpretation of events and inaccuracies, which can create the potential problem of bias in the interview sample (Lee, 1999). However, whilst this is often cited as a weakness in undertaking qualitative analysis, a trade-off must be made between the ability to control the environment and the opportunity to analyse and assess such a unique case. As Yin (1994) points out:

Overall, interviews are an essential source of case study evidence because most case studies are human affairs. These human affairs should be reported and interpreted through the eyes of specific interviewees, and well-informed respondents can provide important insights into situations. They also provide shortcuts to the prior history of the situation, helping (the investigator) to identify other relevant sources of evidence (p.85).

The semi-structured approach also facilitated a deeper understanding of the operations of the dockyard. Because of the sensitivity about security in the

organisation (a defence contractor) and the issues discussed, interviews were not taped. However, transcripts of the interview were written up immediately after each interview. Where required, follow-up interviews were scheduled at the convenience of the interviewee. Because of the in-depth nature of this study, the researcher developed several contacts within the dockyard who also provide updated information on issues relevant to this study.

Direct Observations. Because of the nature of this research - an intensive single case study - direct observations stemming from 18 visits to the dockyard over a period of five years were incorporated into the analysis. As Yin (1994), notes in this context:

By making a field visit to the case study “site” you are creating the opportunity for direct observation..... some relevant behaviours or environmental conditions will be available for observation. Such observations serve as yet another source of evidence in a case study (p.86).

The autonomy with which the research was undertaken provided the investigator the opportunity for direct observation of the content and context of the day-to-day activities of management of the organisation of work. This allowed for the establishment of a more in-depth understanding of the organisational environment within which the new patterns and practices of work organisation had been developed and operated within the dockyard. This was particularly relevant, considering the major changes the dockyard had been through.

**Table 6.2 Details of Interviewees at Williamstown Dockyard
(Third parties)**

Position	Organisation	Additional Information	No of Interviews
ACTU Officer	ACTU	ACTU representative for the Dockyard during the period of transition (public to private).	3
Trade Union officers	CEPU	Members of the Joint	5
	AFMEU	Consultative Committee	3
Senior Victorian Trades	(VTHC)		5
Hall (VTHC) officer	Retired	VTHC representative for the Dockyard during the period of transition (public to private).	3
Senior Federal Government	Retired	During the transition period is Public Servant worked in the Department of Defence	15
Researcher ABPDP	Monash University	Member of the Monash University research group researching the ABPDP and specifically the facility at Williamstown	20+
Naval Personnel (Frigate Project Director and support staff)	RAN & RNZN	Naval Personnel seconded to the dockyard to liaise with WND staff regarding the ANZAC project	4

Whilst this is the least structured of the information gathering approaches undertaken in this case study, as Yin (1994) points out: “Observational evidence is often useful in providing additional information about the topic being studied” (p.87). Therefore, this source of information was seen as a complementary source, to help corroborate or contradict other forms of information gathering, thus providing further opportunity for triangulation of the data.

6.6 Case Study Analysis and Theory Testing

The initial process of case study analysis involved the systematic collection of data and its documentation in such a way as to answer the research questions. Considering the exploratory nature of this thesis, it was important to maintain a flexible approach to the overall data collection and coding. The use of multiple sources of data also allows the research to cover a broad range of themes and issues (Yin, 1994). However, multiple sources of information generated large quantities of information. There was therefore a need to develop a database with appropriate parameters for an in-depth single-case study. As Eisenhardt notes “without a research focus, it is easy to be overwhelmed by the volume of data” (1989:536). To impose order upon this information, the computer software package NUD*IST (Non-numerical Unstructured Data Indexing, Searching and Theorising), was used as it is “currently considered to be the most sophisticated package available” (Ticehurst & Veal, 1999: 106). The NUD*IST code-and-retrieve style of program has been identified as the most appropriate for qualitative data analysis (Miles & Weitzman, 1984; Ticehurst & Veal, 1999) as it enables the data to be firstly, managed and secondly, analysed.

The NUD*IST software package is designed specifically to manage high volumes of unstructured qualitative data. Firstly, the index system allows the data to be coded into key research themes (or nodes) and be retrieved for analysis. Secondly, it has the capacity to segment the text by searching for specific themes and then attaching a code or key words which are theme or research specific. Thirdly, it assigns a 'source tag' so the data reference or source can later be identified. The completed coding framework is often referred to as a tree structure (or more accurately an upside down tree) as the data is coded in a hierarchical way with nodes representing the main branches and the sub-directories that form from these key nodes (or themes) represented as smaller branches (Miles & Weitzman, 1984; Ticehurst & Veal, 1999) as Figure 6.2 illustrates. As Ticehurst and Veal (1999), note:

The index system acts as an organiser of ideas and data indexing. The index tree can be rearranged easily and flexibly by shifting the nodes that contain ideas about the research project as interpretations grow and change. Nodes are used to store the user's ideas and categories and the links between ideas and the data documents. They can be used to gather information on a subject, to pose questions or to save the results of searches (pp.106-107).

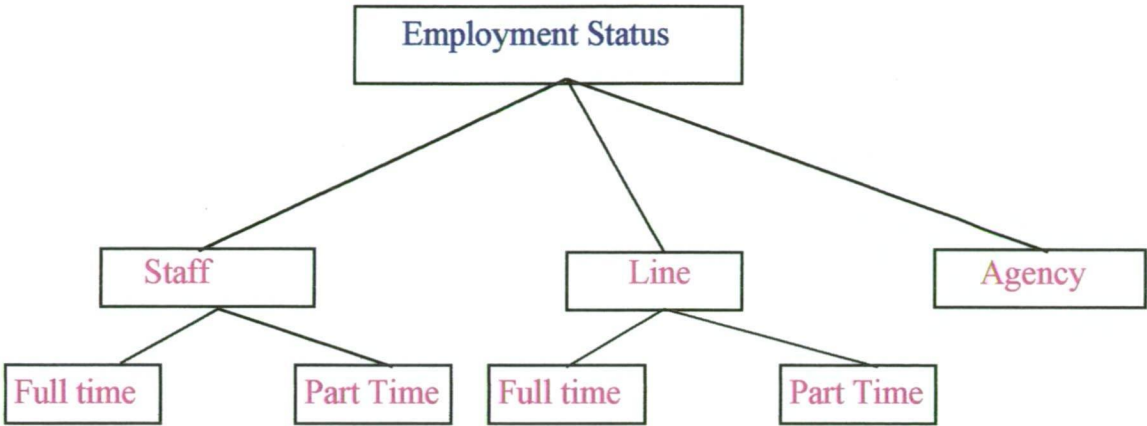
In this way NUD*IST allows for other codes and sub-nodes to emerge progressively as the data collection process advances (Miles & Huberman, 1994). In structuring the data in such a way a more coherent framework can be developed and new insights identified. As noted, it also forces the researcher to continually return to earlier data searching and interrogation, to examine these new themes and relationships. In this way new or previously unidentified aspects of the research can be identified and integrated into the main research format.

The NUD*IST software package therefore enables the researcher to make clearer connections between the data and research question and propositions (Miles & Weitzman, 1994). This allowed for the development of a conceptual and structural order within the analysis as a 'web' of overlapping areas of research formalises the key elements within the research. As Miles and Huberman (1994) note:

The progression is a sort of "ladder of abstraction". You begin with a test, trying out coding categories, then moving to identify themes and trends, and then to testing hunches and findings, aiming first to delineate the "deep structure" and then to integrate the data into an explanatory framework. In this sense we can speak of "data transformation" as information is condensed, clustered, sorted and linked over time" (p.91).

NUD*IST also facilitates the testing of theory and the exploration of new ideas. In the context of case study analysis, NUD*IST is particularly useful in that it can search and retrieve all material on a particular case for detailed description and analysis. This approach also enhances construct validity. This software package therefore provided a valuable tool in the next stage of this process, the analysis of this case study, the results of which are presented in Chapter 7 and Chapter 8.

Figure 6.2 Example of Data Coding for Employment Analysis¹



6.7 Summary

This chapter has explained the research methodology initialised in this thesis. The case study approach was used to provide an exploratory empirical testing of the relatively unexplored area of new and emerging patterns of work and the conceptual framework of the flexible firm model developed by Atkinson (1984). A research protocol was developed to guide the research. A qualitative software package (NUD*IST) was used to develop a database to manage the large quantity of information and facilitate higher order classification and categorisation to allow for theory testing. Thus, this thesis aimed to contribute to an area of research where relatively little empirical research has taken place, particularly in Australia.

¹ See Figure 7.1 for complete Data Coding Structure.

CHAPTER 7

CASE STUDY ANALYSIS: THE DEVELOPMENT OF NEW PATTERNS OF WORK ORGANISATION AT THE WILLIAMSTOWN NAVAL DOCKYARD

7.1 Chapter Objectives

The focus of this chapter is to analyse and interpret the data gathered from the various sources, with a focus on the reorganisation of work patterns and practices at the Williamstown Naval Dockyard. The objectives are derived from the research question and propositions which are: to analyse the extent to which the structure of the Williamstown Naval Dockyard reflects and interprets the flexible patterns of work organisation post-privatisation (1988-2000) identified by Atkinson (1984). Secondly, the chapter seeks to examine the relationship between the development of flexible and new patterns of work and other emergent work practices. This investigation therefore focused on the restructuring of work organisation as a consequence of the movement of the dockyard (the first public utility in Australia to be sold) to the private sector.

7.2. Case Study Selection and Data Collection

The rationale for selecting the Williamstown Naval Dockyard as the case study for this thesis is detailed in Chapter 6. However, to recap, as Dyer (1984) notes, for case study analysis the most suitable organisations are those which have experienced significant change. Firstly, this approach allows for a critical test of theory, in this case the flexible firm model. Secondly, these cases provide the

opportunity to observe a unique or revelatory event and thus the occasion to analyse new phenomena. The Williamstown Naval Dockyard undertook a major restructuring of its work practices. This included the development of the first enterprise-based agreement in Australia. This agreement facilitated the change process in work organisation and international quality. An additional point which enhanced the suitability of the dockyard for case study research was that the changes took place whilst the organisation moved from the public to the private sector. As noted, the dockyard was the first public utility in Australia to transfer to the private sector. Finally, access was made available to this organisation.

Data was collected over a period of six years (1995-2000). Four sources of data collection were used to investigate the development of new patterns of work: documentation, archival records, interviews and direct observation. These multiple sources of information generated large quantities of information relating to the dockyard. To impose order upon this information, the computer software package NUD*IST (discussed in Chapter 6) was used to enable the data to firstly, be managed and secondly, analysed.

7.3 Framework for Analysis

The development of new and flexible patterns of work organisation has been generated by the need to increase the utilisation of organisational resources. Increasingly the focus has been on the development of human resources (Mathews, 1989; Bamber et al, 1992; Emmott & Hutchinson, 1998). This, combined with the deregulation of the Australian labour market and the dismantling of the centralised industrial relations system, has provided the opportunity for organisations to re-configure work patterns and practices to accommodate an increasingly competitive, volatile and global environment.

The framework for analysis used in this thesis is Atkinson's (1984) flexible firm or core-periphery model, which is shown in Figure 7.1. The model provides a useful framework or archetype for analysis for a number of reasons. Firstly, this model integrates both internal and external labour markets. This provides for the development of heterogeneous work patterns, practices and employment terms and conditions, which the new regulatory environment increasingly advocates. Secondly, the structure emphasises increased resource utilisation through the matching of human resources requirements and work demands. This suggests that the organisation will be able to dampen the effects of market changes, thus increasing organisational efficiency and therefore effectiveness. Thirdly, the flexible nature of this model allows management to adopt a basic structure and re-configure the organisational structure to its own unique situation and environmental opportunities and changes.

7.4 Analysis of the Data

In analysing this unstructured data using the NUD*IST software package, 24 nodes emerged in no particular order. Further examination of these nodes identified four primary research areas: industrial relations, quality, flexible work patterns and human resource management. These nodes focused the study and provided a link from which associated areas of research, or sub-topics or branches, could be connected, as Figure 7.2 illustrates. The development of both the primary nodes and sub-directories provides the foundation for the emergence of themes relating to the development of contemporary patterns of work at the dockyard and identifiable aspects of the flexible firm model. The support of the NUD*IST software package facilitated the process of theory building which enabled key issues and themes to emerge. This became the basis for the analysis

of the stated research question and propositions. The three levels of nodal classifications are detailed below in Figure 7.2.

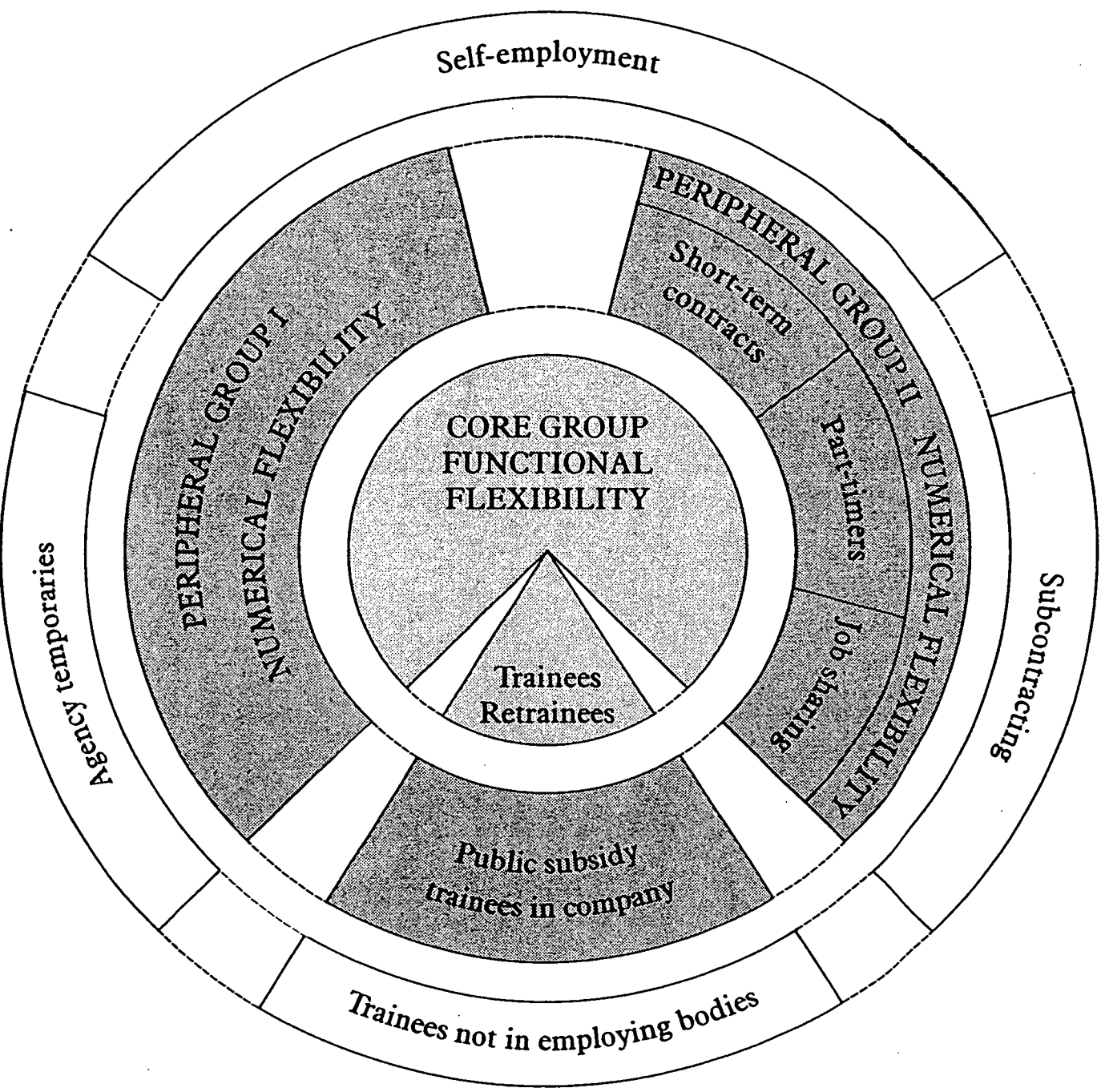
7.4.1 Description of Nodes

As noted, the process of node identification emerged from the integration of the unstructured data. The headings were deliberately named to give a broad representation of the subject matter. The following descriptions of the four nodes provide a background to the general node content.

Quality. This node encompasses the general area of total quality management, including human, financial and product management. It also includes specific programs undertaken both on-site and off-site with the internal and external workforce. These programs strongly emphasised the development of a quality culture in the adoption of these practices. Because of the nature of the defence industry and its heavy reliance on quality above all else, management at the dockyard placed a strong emphasis on benchmarking and accreditation through internationally recognised standards of quality management.

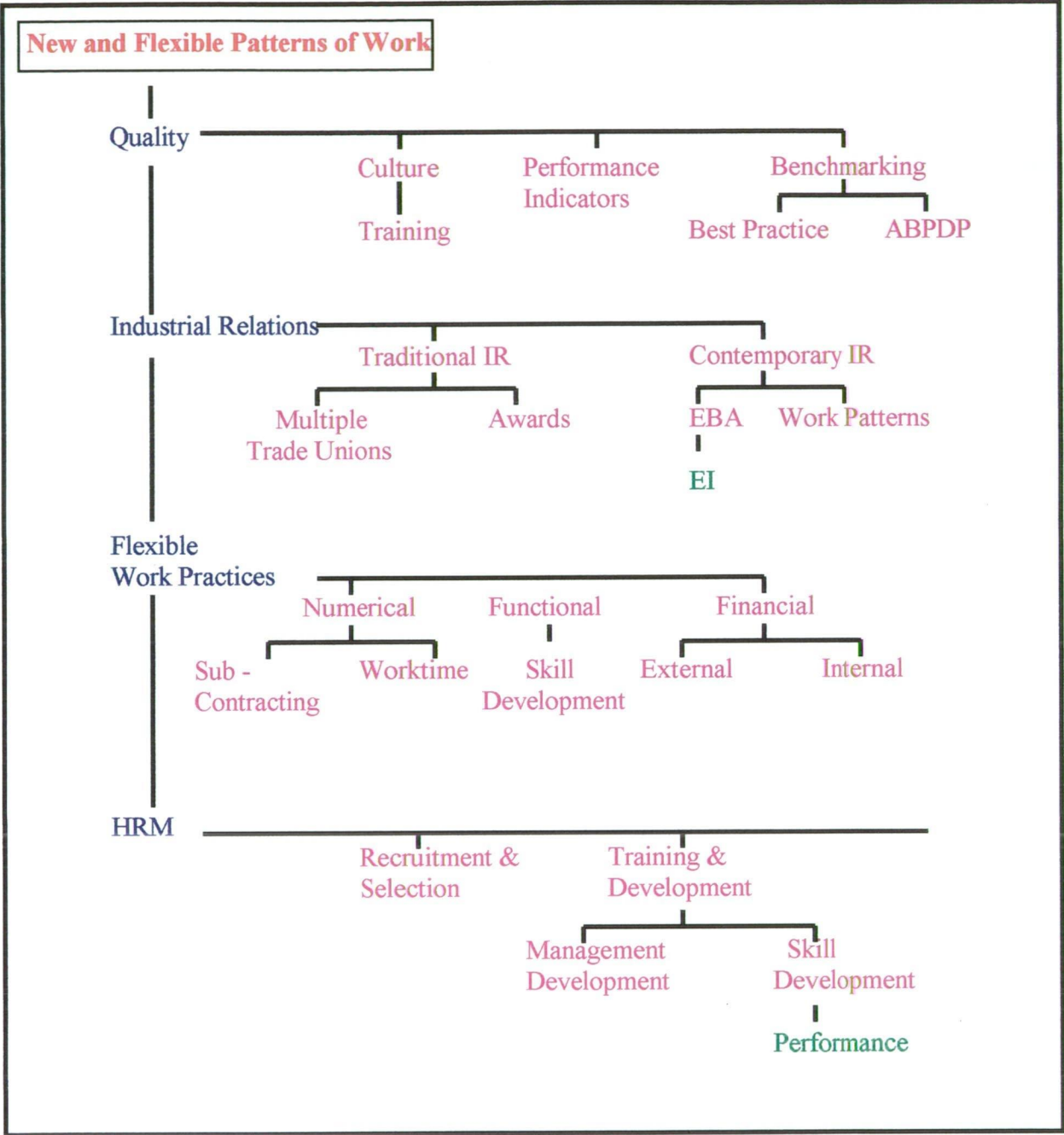
Industrial Relations. This node relates to areas involving issues specific to the employee-management, management-union and intra-union relationships. The major dichotomy or division was into traditional and contemporary industrial relations. This division strongly related to the change in work patterns and practices associated with the transfer of the dockyard from the public to the private sector.

Figure 7.1 The IMS - Flexible Firm Model



SOURCE: Atkinson, J. 1985. *Flexibility, Uncertainty and Manpower Management*, Institute for employment Studies (formerly the Institute of Manpower Studies), Brighton, England.

Figure 7.2 Coding Structure Using NUDIST Node Tree



In addition, this node includes the role and underlying influences of the major (and influential) third parties such as the trade unions, Australian Council of Trade Unions (ACTU), Australian Industrial Relations Commission (AIRC) and the state and federal government in these matters.

Flexible Work Practice. As the central theme or area of investigation in this study, this node encompasses all aspects of work patterns, practices and policies relating to the development of flexible work arrangements and associated and related topics, including terms and conditions and issues of training and skill development. In particular the analysis sought to identify work patterns and practices that related to the flexible firm model developed by Atkinson (1984). The themes of this node refer to the development of internal and external work patterns and practices which facilitated the development of new forms of work organisation.

Human Resource Management (HRM). This node focuses on areas relating to the management and development of the organisation's human resources policies, which were linked to the reorganisation of work patterns and practices. Included in this area of analysis were the processes of recruitment and selection, training and development, performance appraisal and employment terms and conditions. Underlying this node was the attempt to identify factors in the management process which facilitated the development of a core of highly-skilled permanent employees.

Underlying these themes was the environment within which these changes were taking place and the influence of competing factors and stakeholders in the development of work patterns and practices at the dockyard. As a qualitative analysis, this contextual element is central to the development, interpretation and understanding of the changes in work organisation at the dockyard. It is also important in the context of the overall outcomes of these changes in work patterns and practices. As this research focuses on the transition of this enterprise from the public to the private sector, the research theme encompasses issues relating to policies and practices that are connected to the development and maintenance of competitiveness at the level of the organisation. The broad and related focus of these nodes means there is extensive overlap in the themes of research. This is seen as a strength, in that it establishes links between the various elements in work organisation and connections which allow for the development of the analyses.

7.5. Overview of the Restructuring of the Williamstown Naval Dockyard

The focus of the restructuring at Williamstown Naval Dockyard for management was the development of a world-class marine engineering facility able to compete in a dynamic and highly competitive international market. Clearly underpinning this agenda was the development of more efficient and effective patterns of work organisation as central to achieving this goal. As the Human Resources Manager at the dockyard identified:

The first thing we must focus on is the organisation of work, because the organisation of work really dictates what sorts of skills are necessary..... Going hand-in-hand with work organisation is employee relations, technology, education and training. These four

components are treated as a system capable of adjusting to new work demands placed upon the organisation. The education and training system must be capable of adjusting to change in the workplace. The skills training programs at Transfield (now Tenix) Shipbuilding focus on the need to increase productivity and improve quality.

This emphasis on the relationship between the organisation of work and the development of an efficient and effective marine engineering facility was central to the changes management sought to implement in the newly privatised dockyard. These changes were to strike at the heart of what were considered traditional or fundamental customs and practices at the dockyard particularly and the shipbuilding industry in general (see Chapter 3). The framework for these changes was negotiated during the bidding process for the dockyard, over which all parties (trade unions, the federal government, as owner and manager of the dockyard, and the ACTU) appeared to agree. The following sections will explore these research themes in detail to assess the extent, development and effectiveness of the restructuring of the dockyard to create a world competitive marine engineering facility at Williamstown.

7.6 Analysis of Industrial Relations Restructuring

As a public utility, the organisational structure of the Williamstown Naval Dockyard reflected the typical characteristics of a bureaucratic hierarchical organisation, with more than six levels of management. The authoritarian management style of the Royal Australian Navy, combined with a militant workforce, created an environment characterised by high levels of industrial unrest, low trust and antagonistic industrial relations which were manifested in exceptionally poor productivity and performance levels. Whilst these features

could perhaps be tolerated in a stable (and protected) environment with certainty of markets, the transfer of the dockyard to the private sector made this culture completely unsuited to the dynamics of a market-driven competitive environment. As the Human Resource Manager noted, the reconstruction of the dockyard's organisational structure, work patterns and practices and industrial relations became fundamental to accommodating these new conditions of market forces and uncertainty. As a senior manager noted, management made this clear in the initial period of negotiating for the acquisition of the dockyard - that in order to be more competitive a more responsive, adaptable structure was required. This meant a complete revision of the work patterns and practices starting with industrial relations.

7.6.1 Traditional Patterns of Industrial Relations

The development of work organisation in Australian dockyards resembled the rigid craft practices of the British shipyards (see Chapter 4) rather than the more logical approach adopted by European shipyards, where work organisation developed along industry lines (Parkinson, 1960; Kriegler, 1980). HMA Williamstown Naval dockyard exhibited the worst excesses of restrictive and inefficient work practices, a fact which contributed to the dockyard being described as 'notorious as the worst worksite in the country' (Boyle, 1985). As noted, the 'Hawke Report' and Costigan Royal Commission commented extensively on the dockyard's appalling record of industrial relations. A current senior manager described the dockyard during the 1970s and early 1980s as a 'living nightmare'. He noted that as well as on going intra-union disputes, physical attacks on supervisors and their property was not uncommon. This manager pointed to the ice-pick framed on his office wall. Whilst an ornament now, its original purpose was protection against physical attack during industrial disputes. He also noted that acid attacks on the vehicles of managers trying to impose discipline or change on the workforce were typical of the tactics applied by some of the workforce. These problems were also reinforced by current

employees who had worked at the dockyard during this time. Typical comments included:

Management and union relationships were bad, union to union relationships were bad the place was just bad..... (module shop employees).

Morale amongst the blokes at the dockyard was bloody awful.... It was shit-house.... (former employee)

These observations reflect the general view that conflict rather than consensus was the basis for industrial relations at the dockyard, and that this conflict was a significant factor in the dockyard's declining competitiveness. As Humphries (1988a) observed of the dockyard during this period:

Inefficient work practices, bloated workforce and a plethora of union representation have previously been matched in their crippling effect only by the cosiness of shipyard management inefficiency, and the Government's remedy of increasing tariffs and bounties in line with declining competitiveness (p.10).

In addition to work organisation, the apprentice system at the dockyards was governed by the respective trade unions and by the mid-1980s had become completely out of step with requirements. The Employee Relations Manager illustrated this point, citing the example of the shipwrights, where 119 of a total of 120 shipwrights in Victoria in 1981 were employed at the Williamstown Naval Dockyard although there was only sufficient work for 20. Despite this, the shipwright apprentice system was maintained even though there was neither work nor future requirement for these apprentices. As a public utility, the workforce of 2400 at the Williamstown facility was represented by 23 trade unions and lines of

demarcation were endemic. Time lost due to industrial relations conflict had reached 10 per cent per annum by the mid-1980s (Employee Relations Manager). The workforce was covered by 30 industrial awards and 390 work classifications. In addition, there were a further 180 allowances. Whilst these 'add-on' allowances³⁴ related to a wide variety of aspects of work, in particular occupational health and safety, several allowances were less easy to categorise. These included the 'lost dog' allowance, which provided paid time-off for an employee to search for their missing dog. Another unusual allowance was the 'band' allowance, which provided time-off with pay for any dockyard employee attending practice for the Williamstown Band during work hours (Human Resource Manager).

Work practices at the dockyard were further entrenched by Public Service Management Policies which specified no retrenchments. This, combined with an apprenticeship system which took no account of workloads, resulted in chronic overstaffing. These inefficiencies were further enhanced by the complex demarcation agreements as illustrated by the Employee Relations Manager in relation to the demarcation between plumbers and coppersmiths:

Plumbers were required to install "human" systems (water and sanitation) on ships while coppersmiths installed propulsion systems. Pipes often ran side by side, were of the same material and dimensions, but only the appropriate trade could be involved. The net result was massive overtime in one trade whilst the other was on idle time.

³⁴ Allowances are extra remuneration for working outside normal work terms and conditions. Typically, these relate to occupational health and safety issues such as dangerous or poor environmental conditions. However, their scope is not limited to these areas and it is up to the parties to determine the range of these allowances.

As the Human Resource Manager also indicated, idle time for many employees could stretch to over 12 months. Indeed it was not uncommon for employees to undertake a second job outside the dockyard without management's permission. In addition the Employee Relations Manager noted:

Huge numbers of employees frequented the many hotels in the immediate area during all hours of the working day - and for those who know Williamstown there must be a dozen hotels within easy walking distance of the yard.

The major objective for the new management of the dockyard facility during the transition phase was to ensure a successful bid for the imminent ANZAC³⁵ Naval Frigate contract (the biggest engineering contract in Australian history). In addition, they had the two FFG Class Frigates under construction at Williamstown (later named HMAS Melbourne and HMAS Newcastle). A \$(AUS)20 million investment was initiated in equipment and infrastructure, enabling the dockyard to increase fivefold the size of the ship sections handled before sending them to the assembly slip (Planning Manager). However, as all the managers interviewed noted, the major restructuring focused on transforming industrial relations and work practices. This was seen as the major catalyst in the development of an environment and productivity levels conducive to firstly, competing domestically and winning the bid for the ANZAC Frigate project, and secondly, completing the contract at international standards to provide a platform from which to develop an international standing as a world-class defence contractor.

³⁵ ANZAC is a joint naval shipbuilding venture of the Australian and New Zealand governments and is the biggest engineering contract ever undertaken in Australia. Expected completion date is 2005-2006.

7.6.2 Reforming the Industrial Relations Terrain

As noted in Chapter 5, the modernisation of the Dockyard's technological facilities during the mid-1980s made it the only dockyard to be registered with the Standards Association as having the necessary expertise to build weapons combat systems in Australia. However, whilst this gave it a technical advantage, this was over-shadowed by the outmoded work patterns and practices and industrial volatility. The first initiative in management's raft of workplace reforms therefore, was the development of *Procedural Flexibility*, specifically the modification of rules and regulations governing the volatile area of industrial relations. Discussions between AMEC, the Dockyard trade unions and the ACTU commenced whilst the tendering process was still underway. Provision for an enterprise bargaining agreement based upon the Federal Metal Industry Award was agreed upon, with the focus of this new agreement being the development of dispute avoidance mechanisms, skill enhancement policies, the use of sub-contracting and elimination of restrictive work practices: "In other words to be demarcation free with full flexibility" (Employee Relations Manager). To facilitate this, a key element in the enterprise agreement was the reduction of work classifications from 390 to 2 (tradesperson and non-tradesperson or operator), the elimination of 'on-cost' allowances and the recognition of industry specific unions. The preliminary negotiations also set a timetable to develop the agreement within 90 days of AMEC acquiring the dockyard facility (Employee Relations Manager).

Within three weeks of the transfer of the dockyard facility to AMECON on 1 January 1988, negotiations began with management and the Federal Secretaries of the Federated Ironworkers' Association (FIA), the Amalgamated Metal Workers Union (AMWU), the Electrical Trade Union (ETU) and state officials of other unions represented on the dockyard combined union shop committee. The focus on a demarcation-free, skills-based industrial agreement and the recognition of shipbuilding trade specific unions, would see trade union numbers reduced

from 23 to 3. The Employee Relations Manager noted this stance was supported by the ACTU and also reflected the theme of union rationalisation outlined in the then recently published policy document *Australia Reconstructed* (1987)³⁶. As the Employee Relations Manager noted: “The process, then, had the full support of both the ACTU and the Federal Government”.

The disclosure of this reconstruction of the industrial relations landscape between management and ‘shipbuilding’ trade unions brought immediate industrial action from those trade unions on site which believed they would be excluded in such a restructuring, primarily the Federated Storeman and Packers Union (FSPU). With coverage of only a dozen or so members at the dockyard, the union realised that it would be one of the unions excluded from the privatised dockyard. Unrest began less than two months after the transfer of the dockyard, with ‘work-to-rule’³⁷ practices being initiated. Several weeks of protracted discussions involving the dockyard unions, the federal government, dockyard management and the FSPU were unproductive. The dockyard was effectively closed, with a blackban initiated by the FSPU. This action was supported by other trade unions who refused to cross the picket line (Davis, 1988a). The weeks of impasse were further aggravated when representatives of other unions refused to undertake the work of the FSPU. However, as the Employee Relations Manager noted:

The writing was on the wall, the Storeman and Packers Union could not see that even the ACTU would not support them. They over-estimated their strength and they didn’t realise that they were playing in a whole new ball game.

³⁶ For more detail of this policy document see Chapter 3.

³⁷ A work-to rule is an organised protest by trade unions, which usually involves an interruption by employees of normal work processes regarded as non-contractual activities. Working to rule may also involve carrying out management instructions to the letter, and a strict observance of procedures such as safety, which are normally ignored. Employees undertaking this form of protest are not technically in breach of their contract (Farnham & Pimlott, 1986).

This became clear when after a month of working-to-rule and apparent deadlock between management and principally the FSPU on the issue, management closed the dockyard. The FSPU's 12 members then set up a picket line outside the dockyard, maintaining a black-ban on the site. As a Senior Manager noted, "...from management's view the bans and limitations virtually crippled our operation".

On 19 March 1988, AMEC returned the responsibility for the workforce back to the federal government - which had been allowed for in an interim agreement between AMEC and the federal government. Dr. John White, Managing Director of the Dockyard, announced that AMEC would recruit an entirely new workforce because of protracted industrial action. The entire workforce was subsequently retrenched by the federal government on 31 March 1988 (Human Resource Manager). AMEC management argued that for the Williamstown dockyard to increase productivity to a competitive level it was essential that the number of trade unions present on site be reduced (Senior Manager). As the Managing Director commented: "We want unions with real relevance to the dockyard" (White, 1993). In response Molloy (1988) quoted a spokesman for the FSPU who warned that:

.... the long-running industrial dispute at the dockyard would prevent the new owners, the Australian Marine Engineering Corporation, from winning the frigate consortium tender worth up to \$(AUS) 100 million.

This stance appeared to be supported by the then Secretary of the Victorian Trade Hall Council (VTHC)³⁸, Mr John Halfpenny, who was reported to have written to the AMEC management that:

³⁸ The VTHC is the state representative body of unions in Victoria, performing a similar role of representing the views of unions at state level that the ACTU undertakes at a national level.

If the company maintained its insistence on reducing the number of blue collar unions at the plant from 13 to three it would be virtually impossible for the VTHC to give any commitment to actively achieving and implementing a stable and cooperative industrial relations environment with respect to the ANZAC frigate project (cited in Davis, 1988a).

This continued underlying tension was a key issue at the federal government level, with the imminent awarding of the ANZAC frigate contract, as Davis (1988b) noted:

Later this week, the Department of Defence will issue a formal tender request contract.... Until recently, Williamstown was thought to have the edge on its rivals for the contract, a New South Wales consortium that plans to build the ANZAC frigates in Newcastle. Representatives of the corporation (AMEC) are now concerned that the ANZAC frigate contract will be a re-run of the submarine contract that Victoria and others states lost to a South Australian consortium with a positive industrial relations record (p.3).

With AMEC threatening to move interstate to undertake the ANZAC project (Humphries, 1988b, 1988c), the ACTU (with the support of the manufacturing union) stepped in and referred the industrial dispute to its demarcation panel which was made up of then ACTU president Simon Crean, Secretary Bill Kelty and Assistant Secretaries Carmichael, Weaven and Mansfield. Significantly, the dockyard unions acknowledged that they would accept as final the decision handed down by the demarcation committee. The committee endorsed the recognition of only 3 trade union's to represent the Williamstown. workforce. Importantly for management, the ACTU agreed to actively limit the number of

on-site unions at the Dockyard (Employee Relations Manager). The Dockyard during this time initiated a recruitment process for a new workforce.

The reduction of the recognised trade unions on-site from 23 to 3 manufacturing-specific unions left the following trade unions as recognised representatives of the workforce at the dockyard - the Amalgamated Metal Workers Union (AMWU), the Federated Ironworkers Association (FIA) and the Electrical Trade Union of Australia (ETU)³⁹. Despite the unrest created by the excluded unions (in particular the FSPU) the agreement supported by the three representative unions was ratified by the Australian Conciliation and Arbitration Court (ACAC) (later the Australian Industrial Relations Commission (AIRC)⁴⁰ in June 1988.

After four months the Williamstown Dockyard re-opened in late July 1988 with a new industrial relations (procedural flexibility) framework ratified by the Australian Conciliation and Arbitration Court (this was the first 'Enterprise Agreement' to be negotiated and ratified by the ACAC, and endorsed by the ACTU). In July and August 1988, the management of the dockyard recruited a new workforce and by the end of August 1988 AMEC was fully operational. The transition to the new work environment was seen as major progress in a successful bid for the ANZAC frigate project. However, as one senior source within the federal government was quoted as saying:

The Defence Department, which is expected to tell cabinet of its preference by the middle of the year, has made it clear for months to both unions and AMEC that Williamstown could not expect the

³⁹ Through the late 1980s and 1990s, the ACTU managed a rationalisation process of the trade unions in Australia through a process of mergers and amalgamations. As part of this process, the trade unions representing the workforce at the dockyard have since restructured. The FIA is now part of the Automotive, Food, Metals and Engineering Union (AMU-FIME). The ETU is now part of the Communication, Electrical, Electronic, Energy, Information, Postal, Plumbing & Allied Services Union of Australia - Electrical division (CEPU); and the AMWU is part of the Australian Workers Union-Federation of Industrial, Manufacturing and Engineering Employees.

⁴⁰ The ACAC name change took place at the end of 1988.

job if industrial relations were not reformed (cited in Humphries, 1988a).

The reaction from the then Secretary of the Victorian Trades Hall Council, Mr John Halfpenny, in response to the changing industrial relations and unrest at the dockyard continued to sound warnings to both dockyard management and the federal government about future industrial relations at the facility:

I remain optimistic that Williamstown could do the frigate job better than any other Australian yard but accuse AMEC of being obsessive about the number of unions at the yard (cited in Humphries, 1988b).

7.6.3 Work Patterns Under the New Framework

With the framework (enterprise agreement) for industrial relations in place (which facilitated multi-skilling and sub-contracting of work outside the Williamstown facility), and the three union blueprint policy being actively monitored by the ACTU, the threat of industrial action subsided. With the ownership of the dockyard settled (see Chapter 5), the Transfield group renamed the dockyard the Australian Marine Engineering Corporation (shortened to AMECON), and set about re-focusing on the ANZAC frigate contract. In developing a strategy for a successful bid for the ANZAC frigate project, AMECON negotiated an alliance with the German shipbuilder Blohm and Voss. The deal saw the Hamburg-based shipbuilder buy a 25 per cent stake in the dockyard, and in turn provided the dockyard with access to the Blohm and Voss Meko 200 design as a blueprint for the ANZAC frigates (Humphries, 1988d). The next phase of management's strategy was to offer a share of the contracting work to the Newcastle dockyard. Whilst this had the effect of drawing its main rival into the bid, it was also part of the development of more efficient (cost-effective) work organisation through increased contracting out and the

development of modular production (see Figure 7.2 for more detail), thus maintaining a consistent level of work at Williamstown. A further strategic consideration in this offer was that it would diffuse the political tension for the federal government between two rival industrial regions of high unemployment (Humphries, 1988e).

On 15 August 1988, the ANZAC frigate contract was awarded to AMECON, with 40 per cent of the work going to each of the dockyards in Victoria and New South Wales, and the remainder shared among the other states and New Zealand (Insite, 1988). In commenting on the decision, Defence Minister Beazley stated that:

What was critical was in the first instance, the difference in price. On that ground alone, there was sufficient justification. But it was also adjudged that industrial management and support programs offered by AMECON were better than the programs offered by Australian Warships Systems (cited in Humphries 1988e).

This was a major change in the fortunes of Williamstown which was summed up on the day of the announcement of the project by a Williamstown councillor who stated:

Throughout the battle both we of the council and the local community have been quietly confident of winning the contract.... After low productivity and abysmal industrial relations the privatised Williamstown dockyard has shown itself capable of building the Frigates on time and on budget (cited Ryle, 1988).

This position was supported by the then premier of Victoria the Rt Hon John Cain who stated that:

.... a large part of the credit for Victoria's frigate project victory goes to management.... the keys to AMECON's success were the modular construction, which spread work around the country; technological skills, and the good management and industrial relations that had transformed the dockyard's productivity. A few years ago, Williamstown had been an industrial relations graveyard. I congratulate management and unions on the good relations which has reduced the number of unions to three and has meant a first-class industrial relations climate (cited in Young, 1989).

7.6.4 Employee Involvement under the New Industrial Relations Framework

The Human Resource Manager recognised the enterprise agreement as the platform for further reforms identified by management as essential to developing a marine engineering facility able to compete with the best in the world. However, the Employee Relations Manager noted that:

Whilst it is significant to put in place an industrial agreement.... it is equally important to examine how the work methods may best be carried out, to ensure the development of this relationship in the long-term.

To facilitate the development of a consensual approach to the management-employee relationship, AMECON, which by this stage had been incorporated into the Transfield group (although it remained as an autonomous unit), established a variety of mechanisms to encourage the development of an open style of management-employee relationships. This also reflects a key recommendation of the Department of Trade and Industry Shipbuilding Productivity and Industrial Relations Report (1975). Up to this point such an approach was not characteristic

of the Williamstown Naval Dockyard or the industry as a whole in Australia (Human Resource Manager).

The first stage in the development of a consensus approach to industrial relations was the formation of a Shipyard Joint Consultative Committee. This committee comprised both management and employee representatives. The focus of the committee was a forum for open discussion on workplace issues. However, in addition to 'bread and butter' issues of productivity, the committee was also a forum to discuss and make informed decisions concerning issues relating to the organisation's future direction, and the introduction of new technology or changes in work patterns and practices (Human Resource Manager).

Whilst union representatives admitted to being suspicious of the process (and agenda), legitimacy was given to the committee by procedures ensuring that management could not make any changes unless they had been endorsed by the committee (Human Resource Manager). The Committee comprised three management representatives (including the General Manager) and three employees representing the recognised trade unions.

Table 7.1 illustrates the scope of this committee's terms of reference. In addition to the committee's role as a consultative mechanism for management and employees, the development of enterprise bargaining as the means for substantive bargaining on terms, conditions and productivity, saw the consultative committee mature into a Single Bargaining Unit (SBU) (Human Resource Manager). In this role, the substantive issues covered by the SBU included the normal scope of terms and conditions and productivity bargaining (Transfield Industrial Agreement, 1994) as well as:

- training;
- absenteeism;
- safety;
- productivity and performance criteria;
- international competitiveness;
- security of employment ;
- other associated issues.

In discussions with trade union representatives at the dockyard, there was a general acknowledgment that after some apprehension concerning the role and relevance of the committee, it had matured into a forum in which management and trade unions had developed an effective (and, as one union representative described, 'frank') working relationship. This consensual employment relationship has been reflected in industrial dispute figures over the period since the committee (and industry rather than craft-based unions) have been in place. Days lost due to industrial action average 0.1 per cent per annum. This is in contrast to an average through the 1980s of 10 per cent per annum (Human Resource Manager). Regarding these figures, the Employee Relations Manager pointed out that most days lost relate predominantly to outside disputes. In this situation trade unions direct members to strike or attend rallies. Indeed, the researcher can confirm this, as this was the case on one visit. This resulted in the cutting short of interview sessions and the cancellation of others, because of a day of action against the then Victorian state government (in 1996), which culminated in a rally in central Melbourne.

Table 7.1 Functions of the Shipyard Consultative Committee

The scope of subject matter of the Committee is as follows
<ul style="list-style-type: none">• the introduction of new technology;• work methods;• implications of external decisions on the company and employees;• the physical aspects of the employees' working environment;• market conditions and prospects;• project manpower and skill requirements;• problems unresolved at the shop floor level;• to obtain and discuss the views and concerns of the employees;• to discuss management proposals and the effects of proposed changes on employees;• to identify problems and work co-operatively to develop solutions in all areas of the company's operations;• work practices;• performance;• quality evaluation;• other matters of concern to management or employees

Source: Transfield Industrial Award, 1994:45-46

7.7 Analysis of Quality

The transfer of the Williamstown Naval Dockyard to the private sector and the demands of a market environment meant that the dockyard had to compete on quality and reliability, both in terms of product and deadline if it was firstly, to survive and secondly, develop into a world-class marine engineering facility. In terms of survival, whilst the enterprise agreement provided the foundation for policies to increase the utilisation of human resources, as the project manager for the ANZAC ships noted: “We still needed to prove we could make world-class naval ships”. What all the managers interviewed recognised in this context was the issue of quality, and in particular, the development of a quality culture. The focus of the development of this culture included extensive investment in training, the introduction of the principles of Total Quality Management (TQM) and Benchmarking against World’s Best Practice.

7.7.1 The Development of a Quality Culture at Williamstown Naval Dockyard

The importance of creating a quality culture as the basis for developing Williamstown into a world class marine engineering facility was illustrated in the organisation’s mission statement:

Transfield Shipbuilding’s mission is to provide *high quality* products and services to our customers and to maintain our *international reputation for excellence* in shipbuilding, marine engineering and defence systems [*emphasis added*].

The importance and recognition placed upon quality and the achievement of a quality culture at the dockyard was highlighted by management agreeing to terms and conditions for the completion of the ANZAC frigate project in 1989. This required the facility to improve its standards by between 30 and 40 per cent on

actual performance by 1994. Infringement of these performance indicators would result in financial penalties. As the Human Resource Manager noted:

Our company's mission is to provide high quality products and services to our customers and to maintain our international reputation for excellence in shipbuilding, marine engineering and defence systems. Our goals and targets were simple..... TDS had contractually committed to a fixed sum price to the Australian Government for the entire ANZAC ship project. This fixed price was based on achieving the same levels of quality and productivity as the current best practice - German naval shipbuilding practice which was in 1989, some 35 - 40 per cent above our existing best practice. If TDS does not achieve these levels we will not continue to be viable and certainly not win export contracts.

From an organisational perspective this point was reinforced by the Employee Relations Manager:

Once TDS was awarded the ANZAC Ship Project, our management, our employees and their unions committed to increasing productivity..... This commitment has enabled us to maintain a viable shipbuilding industry in Australia capable of winning projects of national and international significance which enhances Australian industry, and expands and retains the expertise within Australia.

The undertaking of this commitment to a quality culture at the dockyard was to focus on developing and actively managing the evolution of TQM principles through day-to-day work activities. Several managers noted that with the recruitment of a new workforce and the enterprise agreement in place they had in

effect a *tabula rasa*. The Human Resource Manager noted that this presented the opportunity to develop a quality focus at the workplace level. TQM was introduced to the dockyard through the Quality Productivity Improvement Process, or QPIP as the program became universally known at the dockyard. As the Human Resource Manager continued:

QPIP was developed as a tool we could use to achieve the benchmark of improving our productivity by about 35 - 40 per cent by mid 1994, and to continue to match international productivity levels thereafter.

The first step in the development of TQM through the QPIP program was the identification of the customer and the establishment of a customer focus. As the ANZAC Project Manager noted, from management's perspective, the development of a customer focus was critical in developing an organisation that could provide quality and customer-orientated products and services. Management defined the customer as both external and internal. Whilst employees could readily identify external customers, when the focus moved to identifying internal customers the Human Resource Manager noted:

This question was initially met with a combined wall of silence and confusion. The workforce had never seen themselves in this context before.....

When the concept of internal customers had been established, the next major obstacle was the concept of what the (internal) customers expected. As the HR Manager continued:

Traditional work practices compartmentalise and fragment the production process in the dockyard, to the extent that knowledge of

the process before and after their own point of contact was hazy. On the question: How do we know when they get superior work from you? This was met with even more blank reactions. It was identified that when work was recognised as substandard a paper chase would ensue and re-work would eventually feedback into the system. There were no direct mechanisms for feed back assessment or consultation between internal customers and suppliers. Similarly, the question: How do you know how you are doing? was met with equal difficulty because of the lack of feedback, review and consultation undertaken in the system.

The Human Resource Manager also noted that in the early stages the QPIP program was given the somewhat appropriate nickname - "*Quick Piss in Pocket*." This antipathy towards the program, she acknowledged, was in part a 'hangover from the previous culture'. This assertion was supported by the Employee Relations Manager who noted a degree of apathy, conservatism and occasional unhealthy competition put a strain on many of the initiatives. However, as the program developed this culture was slowly broken down as the employees started to identify how ineffective the traditional systems were, and began to understand the basic principles of total quality management (Employee Relations Manager). However, as the Human Resource Manager noted, the final area of analysis posed the most significant problems. When asked: What can you do to make it better?

This was met with stony silence, as this meant being critical of people and management as well as systems. This was the hardest barrier to break down. To convince employees that there would be no retaliation in telling the truth as they saw it (Human Resource Manager).

The Human Resource Manager notes that only when this 'taboo' was broken down was there opportunity for progress. Importantly in the development of this quality culture, the second and third element of the QPIP program - Involvement and Commitment and Continuous Improvement - were crucial in sustaining the program through the early indifference and general perceptions of it being a fad (Human Resource Manager). With regard to Involvement and Commitment, the QPIP program importantly involved all levels of the organisation to ensure it was seen as a critical aspect of all work at the dockyard (Senior Manager). This also facilitated the breaking down of barriers within the organisation, while allowing the gradual development of team-based work organisations involving various levels of the organisation (Human Resource Officer). The philosophy of Continuous Improvement was also important in that as the Human Resource Manager points out:

We don't expect improvement in productivity to happen overnight, rather we expect changes to occur in small steps by incrementally improving the system.

This point was supported by the Planning Manager, who noted that:

The aim of the program is to make continuous improvements in everything which is done. To eliminate waste and concentrate all efforts towards being a highly competitive company.

The commitment of the organisation to the QPIP program is supported by a training budget which is approximately three times larger than comparative organisations in the manufacturing sector (Manager R&D). The training and development framework at the dockyard is explored in more detail in the Human Resource Management section of this chapter.

The second stage of the QPIP program emerged in the early 1990s and focused on developing QPIP teams in the workplace. The Human Resource Manager notes that:

The QPIP team usually comprises approximately eight people from a cross-section of employees and management. In the production area three permanent QPIP teams operate - one which investigates problems spanning more than one area and one each in the Sheetmetals and Fabrications sections which look at problems specific to these areas. These were followed by teams in the Administration, Technical and Commercial areas. All areas aimed at improving systems and procedures and involved staff at all levels.

The Human Resource Manager noted that QPIP teams are now well established across the organisation because of the training and on-going support they get in terms of resources and the change in culture within the organisation. The key processes involved in the QPIP team include the identification of problems, the collection and analysis of data, recommendations, implementation of approved actions and the monitoring of changes (Human Resource Manager). The ANZAC Frigate Manager identified the broad range of issues covered by the QPIP teams in this project including:

- Examining work in progress;
- The determination of better methods of work;
- Eliminating trouble spots; and
- Implementation and monitoring of improvement.

Areas identified by the Human Resource Manager and ANZAC Frigate Manager where QPIP teams have been effective include:

- Improving safety in the work area;
- Building quality requirements into the product;
- Improving the work process;
- Improving productivity;
- Elimination of waste through identifying:

Excess materials and defects

Equipment down time

Expenses, indirect labour

Over-engineered design

Waste of talent (under utilised skills)

Poor introduction of new processes

In discussing the philosophy and focus of TQM in the dockyard, the Human Resource Manager explained:

In adopting the Total Quality Management principles, QPIP is all about getting it right first time. By getting it right the first time we can expect to reduce defects and complaints from our customers; reduce the cost of scrap and re-work across the whole organisation and improve productivity, since our work effort is not wasted.

From the perspective of trade unions and employees, it is clear from interviews that the QPIP teams are a well-established part of the work patterns and practices at Williamstown. Perhaps more importantly these new work practices are accepted by the employees as an important aspect of the workplace culture (this is probably best supported by the fact that they are continuing and have spread across the whole organisation). The nature and make-up of QPIP teams can and does vary over time. Some teams remain relatively stable, whilst other may be created in response to a specific issue and disbanded on completion of the task.

Through what is described as the continuous improvement cycle (see Figure 7.3) there is constant feedback between the key elements of production and the QPIP teams, which increases the understanding of the issue at hand (Project Manager ANZAC Ships). As one naval officer seconded to the dockyard noted on this process: “I think the way we are doing business is essentially correct”.

7.7.2 Developing Quality Performance Indicators at Williamstown

With regard to the development of external customers, the Royal Australian Navy (RAN) and the Royal New Zealand Navy (RNZN) remain the dockyard’s major customers until 2005-2006. To ensure the development of a close working relationship, naval personnel (Frigate Project Director and support staff) have been located at the dockyard. As the Frigate Project Director noted: “This allows us to ensure that strict quality standards are being adhered to in this project”. The Project Manager ANZAC Ships describes this as a win-win situation, in that the naval personnel can be involved literally “at the point of production” as the project develops and matures. Modifications are continuously discussed and “it allows us to work closely, as a partnership. It means we have developed a good understanding, and can move quickly to satisfy their requirements”.

In addition to the QPIP program, and to ensure the development of this quality culture, management undertook the process of achieving Shipbuilding Industries Accreditation - ASI 822. This accreditation is the highest awarded by the Department of Defence and was achieved in 1990 (the first time it had been awarded in Australia) after substantial auditing of the company’s quality systems by the Department. This was followed by the formal accreditation of the dockyard’s Quality Management System to the highest quality standard in Australia - Australian Standard AS 3901⁴¹ in 1991. The dockyard is the only shipbuilding facility in Australia to achieve these quality standards.

⁴¹ AS 3901 is identical to the International Standard ISO 9001 which specifies the requirements for quality assurance across a range of factors including design, development, production, installation and servicing. (See Chapter 2 and Appendix 1 for more details).

The emphasis on developing a quality culture throughout the dockyard is also reflected in its human resource management systems, policies and practices. The most high profile example of this is in the area of Occupational Health and Safety (OH&S). As the Project Manager ANZAC Ship explains:

Occupational Health and Safety is a high priority. We focus on inspection and feedback..... ships are inspected weekly and the shops inspected monthly. This is in addition to checks being built into the work format, that is staff are given responsibility for checking each other's work and not just their own.

The general approach to or philosophy of the development of quality at the Dockyard was succinctly put by the Planning Manager:

Quality is becoming part of the culture. Some things cannot change overnight here.... I estimate it will take 10 years.... We've got good people and the key change I see is that quality is now being built-in rather than inspected out.

7.7.3 Benchmarking at Williamstown Naval Dockyard

As part of the program to attain international competitiveness at the dockyard, management recognised the need to put in place a process of benchmarking of work practices and procedures against world best practice. Dockyard management decided upon the German Shipbuilder Blohm and Voss, based at Hamburg, as a benchmarking associate. Blohm and Voss was a logical choice as a benchmarking partner because of its standing in the industry and as designer of the ANZAC frigates (which are based upon the Blohm and Voss MEKO 200 class frigate). This resulted in the development of close relations in the initial period of the ANZAC Project, as modifications were necessary to the original

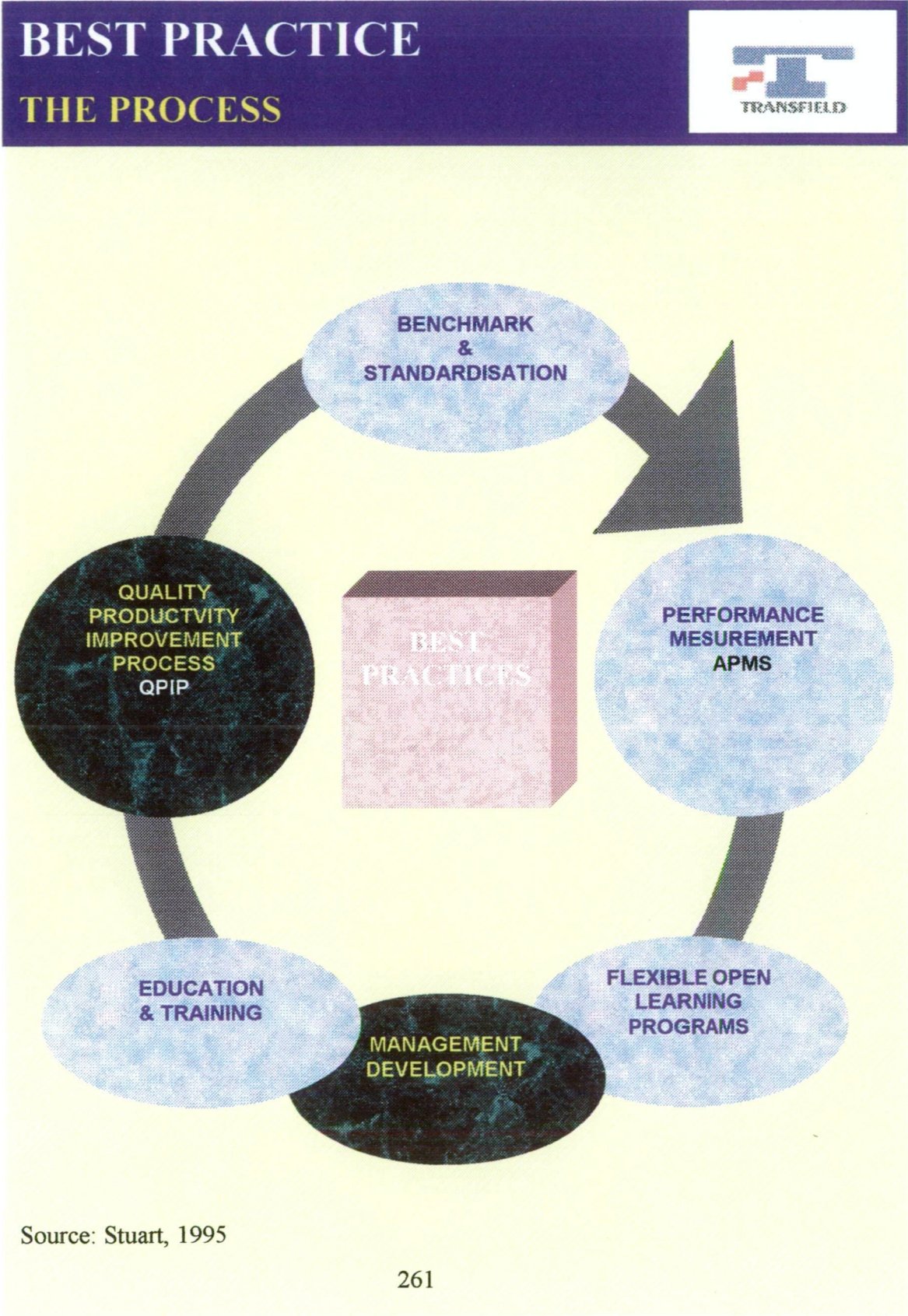
design to suit the Australian and New Zealand naval requirements (Project Manager ANZAC Ships). The major criteria underpinning the benchmarking process at the dockyard were outlined by the Planning Manager:

As you know best practice is not fixed, companies are continually seeking new ways to improve, so our challenge is to keep up with our competitors. Because the (federal) government had the option of buying overseas, which it had done before, there was a need to match overseas performance and cost. For the ANZAC project the tender price was based on a 35 per cent increase in productivity for the first ship (by 1994) which was equal to Blohm and Voss, about 20 per cent for the second and equal to the German level for the third and following ships, which involved reaching this level by mid-1996, and maintaining best practice after that.

The central elements in establishing the benchmarking process with Blohm and Voss were to identify the factors that made this organisation world competitive and establish policies and practices to achieve these benchmark standards. As the Human Resource Manager noted:

We have to be committed to achieving this international standard as a matter of urgency.... If we do not continue to be viable we certainly will not win export contracts. The ANZAC Frigate Project contractually committed the organisation to a fixed sum price for the entire duration of the project, which was expected to be 15 years.

Figure 7.3 The Continuous Cycle



Because the design of the ANZAC frigates was based on the Blohm and Voss MEKO 2000 frigate, there was already a core group of experts from Blohm and Voss working at the Williamstown facility. This core was supported by a steady rotation of new staff from Blohm and Voss as the project developed through its various stages (Project Manager ANZAC Ships). To ensure that management could identify and study German (best) practice, an office was set-up within the Blohm and Voss dockyard in Hamburg. As the Planning Manager noted: “it enabled us to develop a closer relationship with the designers of the ANZAC frigates”. The office (now closed) was staffed by on average 13 expatriate senior employees who (with their families) were seconded for periods of between one and three years (Project Manager ANZAC Ships).

Establishing Goals and Targets for Best Practice. Through the benchmarking partnership arrangement, the key factors in the development of best practice at Williamstown were identified, established and monitored. The specific areas where benchmarking took place were productivity (output) and quality (standards), using performance indicators including re-work⁴² and production targets, documentation procedures, Occupational Health and Safety (safety records) and lost time (Project Manager ANZAC Ships). As noted above, a study of the work practice at the Blohm and Voss dockyard identified a productivity shortfall of between 35 and 40 per cent. To achieve these world best practice standards of performance a cost account (Cost/Schedule Control System) and operations plan (Project Management System) were developed. These systems measure and specify task performance, accountability and work order levels. As the Manager - Treasury explained:

⁴² This was a key recommendation in the overseas mission on productivity and industrial relations (DTI, 1975).

Our benchmark is the work hours required to perform the task and order. Overall requirements of our benchmark are broken down into resources budgets against each and every work order, which then becomes the individual benchmark for every team in TDS.... We measure our performance through our project management system, which monitors the performance of the work order by matching actual work hours expended against the resource budget.

The Project Management System (PMS) is closely linked with the Cost/Schedule Control System (C/SCS) which is now a requirement specified by the Australian Department of Defence (Manager - Treasury). Importantly, the Manager-Treasury and Planning Manager both noted the important role QPIP teams played in providing a vital link between the theory and practice of the PMS. As the Planning Manager explained:

.... the link is the QPIP teams. QPIP are formed where opportunities for improvement are identified or where a problem is identified..... All improvement solutions are recorded and work orders are redefined..... when a scheduler completes a work order to perform the same task on the next ship, all improvements will have been incorporated in the work order including a reduced work hour budget.... This process increases our productivity on a continuing basis.

This system has underpinned the continuous improvement of all aspects of work productivity at the dockyard from manufacturing to processing of accounting information (Accountant - Treasury).

7.7.4 The Australian Best Practice Development Program (ABPDP)

To help support the continued development of best practice and total quality management at Williamstown, a successful application was made to the ABPDP for financial assistance of \$(AUS) 5,000,000. The focus of this application related to specific elements of the ANZAC frigate project (projects and their costings are outlined in Table 7.2). The projects (discussed below) commenced in October 1991 and were funded through to December 1992. However, it is worth noting that several of these programs were maintained after the funding period and have provided the building blocks for further development of best practice systems.

Project One: ANZAC Shipbuilding Construction Manual

The focus of this project was the documenting of work patterns and practices associated with the ANZAC Frigates project. This laid the foundations for the development of performance measures for the purpose of benchmarking international best practice with Blohm and Voss. The two volumes produced consisted of technical references and training programs for use by dockyard employees and sub-contractors. In discussion with senior managers, the manuals were consistently cited as a key part of the training and development strategy to achieve international standards of best practice.

Project Two: Cost and Schedule Control System (C/SCS)

As noted, part of management's short-term strategy on quality development at Williamstown was to have its cost control and budgetary systems accredited by the Department of Defence. Prior to privatisation, the dockyard's control systems had gained the nickname 'Bermuda Triangle' because of the amount of stock and supplies that would enter the dockyard and never be seen again (Employee Relations Manager). C/SCS was also seen as the first stage of the organisation's long-term strategy to achieve accreditation of the US Defence Specification 7000.2 (through the Department of Defence). This internationally accredited

standard was a prerequisite for tendering for international contracts. As the Accountant-Treasury noted, the development of the Cost/Schedule Control System with the help of consultants identified many problems and anomalies with the existing budgetary and accounting systems. During 1991 and 1992 these systems were extensively overhauled (Accountant - Treasury). In June 1992 the dockyard facility received accreditation of the Cost/Schedule Control System and the US Specification 7000.2 (Manager - Treasury).

Table 7.2 Costing of the ABPDP Projects

Project	Costing (\$)
<u>Project One:</u> ANZAC Shipbuilding Construction Manual	142 000
<u>Project Two:</u> Cost Schedule Control System	160 000
<u>Project Three:</u> Middle Management Training and Development Program	108 000
<u>Project Four:</u> Six QPIP Open Learning Training Modules	70 000
<u>Project Five:</u> Presentation of ABPDP to ANZAC Project Sub-contractors	20 000

Source Macneil, (1996).

Project Three: Management Development Program

In 1992 three management courses were developed and implemented as a joint exercise between Monash University (Melbourne) and METRC. The courses of 6 months duration included:

- Team building
- Leadership and Managing People
- Strategic Planning
- Communication
- Effective Time Management
- Management Process and Decision Making

METRC eventually took full responsibility for course content and the development of an additional course on Organisational Communication. This is one of the programs that has continued after the initial funding period (Human Resource Officer).

Project Four: QPIP Open Learning Training Modules

To facilitate learning that suited the diverse needs of employees (including time and pace) the QPIP Open Learning Training Modules were developed. The wide range of employees involved in the QPIP program required modules that were general in scope but specific to the requirements of particular groups (Human Resource Manager). The modules developed within this project included:

- Introduction to QPIP
- Senior Management Module
- Middle Management Module
- QPIP Facilitator's Course
- QPIP Team Guide
- Project Management (Benchmarking)

With the focus on quality as a key competitive edge in gaining domestic and international accreditation and the initial problems in developing a quality culture, this aspect of best practice had fallen behind schedule (Human Resource Manager). The ABPDP financial support became a catalyst in the development of the initial six QPIP Open Learning Training Modules. This platform has subsequently led to the development of more than 20 modules covering diverse areas including technology, management and best practice techniques. These modules have also been used to provide sub-contractors with the skills required to achieve best practice and the quality standards necessary to become a supplier to the ANZAC Frigate Project (Human Resource Officer).

Project Five: Presentation of Australian Best Practice.

(A Demonstration Project to ANZAC Ship Sub-contractors)

As part of the process of disseminating the principles of quality and best practice, the demonstration program was recognised as an important process in the identification and development of potential supplier relationships. As Macneil (1996) notes:

(Dockyard management) wished to demonstrate its principles to sub-contractors and show them how it would measure their performance using the Cost/Schedule Control System and show Australian and New Zealand firms how they could become involved in the ANZAC Ship Project (p.34).

Because of the requirement that 80 per cent of the work for the ANZAC Frigate Project should be domestically sourced, this became an important avenue to attract potential suppliers. Seminars have continued after this initial financial

support, with more than 600 organisations involved in the process to date⁴³ (Accountant - Treasury).

7.8 Analysis of Flexible Work Patterns

Through the framework of the enterprise agreement, management was provided with the procedural flexibility to restructure the working patterns at the Williamstown facility. The change process undertaken by dockyard management with regard to the organisation of work can be examined in the context of the emergent themes of flexible work patterns as defined by Atkinson (1984) - functional, numerical, and financial flexibility - and underpinned by procedural flexibility as defined by Rimmer and Zappala (1988) and Bamber (1990).

7.8.1 Numerical Flexibility

The traditional model of work allocation at the dockyard was guided by public sector management policies at the core of which was a no retrenchment policy (Human Resource Manager). This was supported by a union closed shop which refused to allow work that could be undertaken by dockyard employees to be outsourced, or for subcontractors to work on-site. As a consequence, employment was geared to peak workloads. This, combined with the extensive and complex lines of demarcation, led to excessive over supply of labour which translated into extensive 'idle time'. This idle time could run into months and even years, as the nature of traditional shipbuilding requires a specific order of systems (sequential production) with one section of work to be completed before further work could progress (Employee Relations Manager).

The dockyard response was to setup a recreation room with various equipment including dartboards and pool tables. In addition, there was a concerted effort to

⁴³ This technique was also used in the development of the Malaysian Patrol Boat bid and to a lesser extent the Philippines Patrol Boat bid.

have a gym installed as a way of keeping employees active and on site (Human Resource Manager). Because of the longevity and cyclic nature of these periods of idle time, it was not uncommon for employees to take a second job outside the dockyard during these periods, without management's permission (Human Resource Manager).

Sub-contracting on and off site. In contrast, the enterprise agreement developed by AMEC/AMECON and the ACTU specifically allowed for the use of contractors to facilitate the work in the dockyard as and when required. In effect this allowed for the development of a dual workforce. However, as the Employee Relations Manager noted, there was deep suspicion on the part of the workforce and unions surrounding these new patterns of work. To satisfy the unions that this was not going to lead to a 'hollowed out facility' the enterprise agreement explicitly noted that:

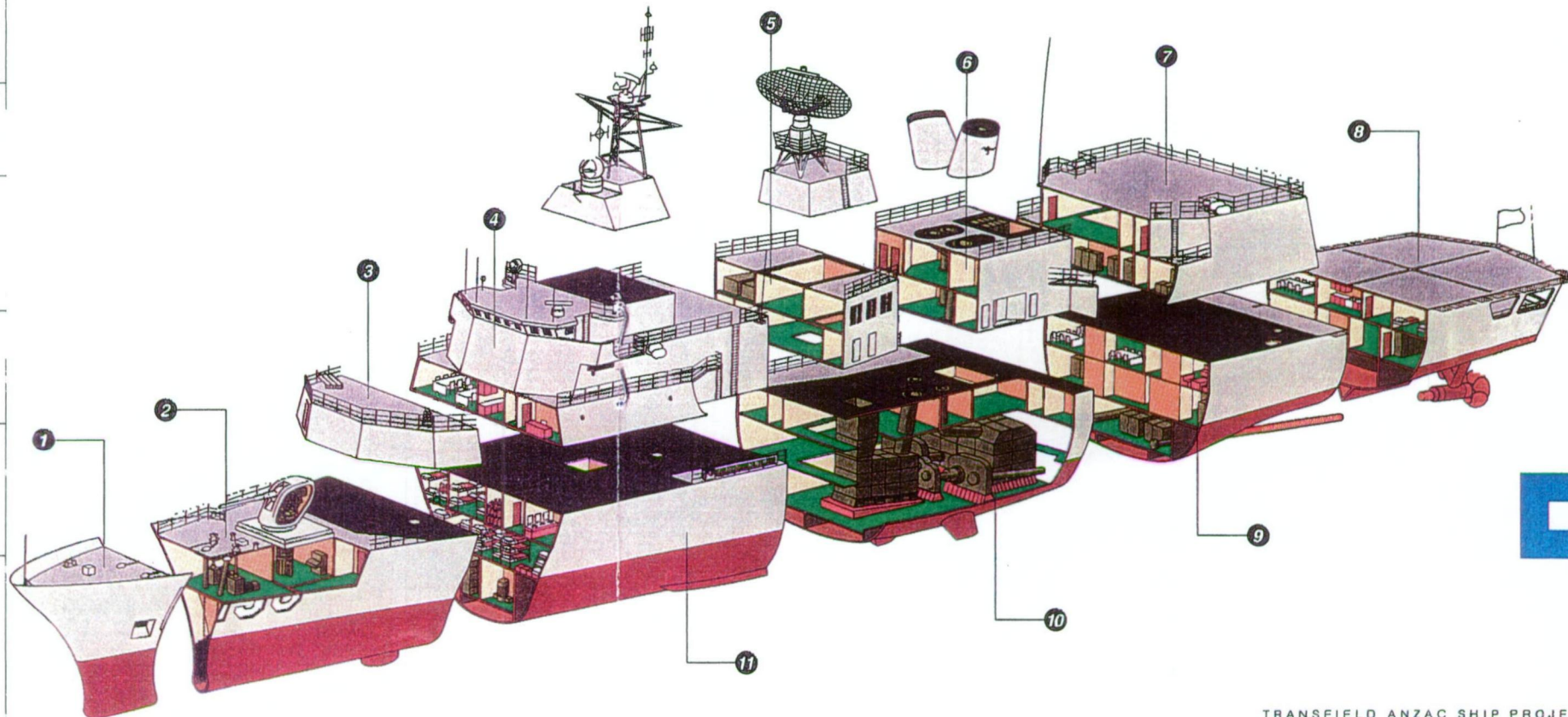
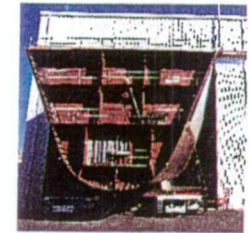
It is not the Company's intent to erode the job security, earnings or conditions of employees by the use of contract labour.....
Contractors will be required by the Company to carry out work at the Company's facilities and off-site at other companies' facilities as and when required (AMECON, 1990:71).

The integration of sub-contractors is undertaken when a need to supplement normal procedures or provide specialised work arises. These work patterns enhanced work organisation, as the option of using external labour allowed management to apply the process of modular ship construction. The modular production process allows for whole sections of work to be sub-contracted, thus maintaining a compatible level of activity on site. It also enables sub-contractors to 'Carry out activities that cannot be economically performed by the Company's employees' (AMECON, 1990:71).

Modular construction is used extensively in German and Japanese dockyards and allows for parallel rather than sequential production, thus allowing productivity to be greatly increased. It is seen as *Best Practice* in shipbuilding (ANZAC Project Manager). The assembly and outfitting of the modules, ranging in size from 200 to 400 tonnes, takes place at the Transfield Marine Engineering facilities at Newcastle on the north coast of New South Wales, at Whangarei on the North Island of New Zealand and at Williamstown (Planning Manager). The sections from Newcastle and Whangarei are then barged to Williamstown for assembly. The ANZAC ships comprise 12 modules in all (see Figure 7.4). Except for the first of the ANZAC ships (which was wholly constructed at Williamstown) all the ships have been constructed from modules built on the three sites (ANZAC Project Manager).

The development of this modular construction process has necessitated the creation of a Module Hall at Williamstown. In effect this is a large industrial assembly area to which all modules are delivered. The building is equipped with transporters with up to 400 tonnes capacity and two overhead gantries for assembly and outfitting work (Planning Manager). The integration of these work practices and associated logistical planning allows recruitment to be geared to program troughs rather than peaks. This provides the flexibility to maintain a stable core workforce at each centre while supplementing the core skill base as and when required. In keeping with the consensus approach to industrial relations, all employees of sub-contractors are required to be financial members of the appropriate trade union, which alleviated the job security issue with unions on-site (Employee Relations Manager; Trade Union Officers). This clause cleared the way for the development of a dual sector workforce, which has allowed management to develop an extremely flexible organisational structure facilitating the flexible utilisation of human resources, parallel production and on-site sub-contracting (Human Resource Manager).

- ① **Module M6**
Paint store
Rope store
- ② **Module M5**
127mm gun turret
Magazine
'Spherion' anti-submarine sonar
Ventilation module
- ③ **Module A6**
Missile decoy (Chaff) launchers
Chart house
Replenishment-at-Sea store (RAS)
- ④ **Module A5**
Bridge
Operations room
Electronic compartments
Fire control system
Officers accommodation
- ⑤ **Module A4**
Radar compartments
Air intakes
Diving store
- ⑥ **Module A3**
Exhaust uptakes
'Sea Sparrow' anti-aircraft missile
RAS store
- ⑦ **Modules A1 & A2**
Hangar
Helicopter maintenance workshops
Torpedo stowage
- ⑧ **Module M1**
Flight deck
Dining rooms
Storerooms
Quarterdeck
Helicopter fuel
- ⑨ **Module M2**
Galley
Accommodation
Diesel generators
Fuel tanks
- ⑩ **Module M3**
LM2500 gas turbine
MTU 12V diesel engines
Cross-connecting gear box
Stabilisers
Fuel tanks
- ⑪ **Module M4**
Accommodation
Diesel generators
Storerooms
Fuel tanks



Worktime Flexibility (Internal Numerical Flexibility). To further develop and maximise the utilisation of human resources, the core workforce also provides a form of numerical flexibility through variations in worktime. As the enterprise agreement specifies:

16.4 Flexible Hours of Work

To give effect to the Company's World Best Practice and Productivity Improvement Policy, Hours of Work in this Agreement will be structured in a manner designed to achieve maximum continuity of operations without disruption to work flow.

Any readjustment of hours of work outlined in accordance with this subclause may be trialed for periods up to three months and applied to a section or sections of the workforce. Such trials shall only be instigated subsequent to discussion with the Shipyard Consultative Committee. If successful, and by agreement between the parties, trial practices may be continued and/or modified. (TDS, 1997:29).

Whilst traditionally the dockyard had used overtime as and when required, this had been at the cost of significant financial penalties and occasionally disputes (Employee Relations Manager). Thus, while work hours are specified within the enterprise agreement, incremental variations within the period specified (between one to four weeks) with a maximum of 10 hours per day, and special provision to work up to 12 hours a day (subject to the ACTU Code of Conduct on 12 hour shifts), provided cost effective flexibility (TDS, 1997). In addition, variations in the spread of work may also be undertaken by mutual consent and where additional or emergency work is required. These variations are undertaken in

accordance with Occupational Health and Safety regulations (Employee Relations Manager). It is also important to note that all these variations are subject to discussion and agreement with the Shipyard Consultative Committee (Employee Relations Manager).

As noted, the use of shift work is also provided for in the enterprise agreement, specifically where unimpeded production is required, or for short periods in relation to the production schedules within the context of appropriate regulations and agreements (Employee Relations Manager). These flexible work patterns provide the dockyard with the framework to work unimpeded in short bursts as and when required (under agreed and monitored guidelines). While these changes reflect an incremental change in the organisation of work for full-time or core employees, such variations can provide significant performance enhancements, as labour costs are reduced through the elimination of a multitude of restrictive work practices (in particular lines of demarcation) and an associated array of penalty rates. (It should be noted that overtime rates do apply.). Labour usage is also maximised through the integration and variation in mix of full time core employees and sub-contractors. This flexibility in the management of human resources allows the facility to adjust its timing of labour utilisation quickly in response to the demands of the market and customer.

7.8.2 Functional Flexibility

A key element in the development of more efficient and effective patterns of labour utilisation at the dockyard was the development of a multi-skilled core of full time employees. The specific investment in functional flexibility was a direct response to the dynamics of the market environment in which the dockyard was now positioned. Management identified the need for a core workforce with the ability to undertake a variety of tasks as and when required with minimum disruption (Human Resource Manager). The procedural flexibility provided for in the enterprise agreement framework was the catalyst for the development of this

multi-skilled workforce. As noted, the key procedural or regulatory changes included the reduction of employee classifications to two (where previously there had been 390) and the recognition of three industry-specific unions (previously 23 unions were recognised at the dockyard).

These changes eliminated major restrictive and conflictual issues of work organisation, specifically lines of demarcation. For the employees, the linking of pay rates to skill development and career paths also provided an incentive for the continued development of functional flexibility. Finally, the extensive investment in training across the organisation and the setting-up of the Maritime Engineering, Training and Research Centre on site (METRC) as a joint-venture with the Victorian state government provided the infrastructure for the continued and on-going development of a highly-skilled core workforce.

Skill Development. The development of each individual's skills is undertaken in consultation with the appropriate supervisor and a skill development plan is determined (Human Resource Officer). These discussions are framed within the context of the organisation's skill requirements both in the short and long-term, and the employee's current level of knowledge, skill and competence. Once the plan is developed it is monitored by the manager responsible for Training (Human Resource Officer). To ensure flexibility is maintained within the Training Matrix, provision is made within the enterprise agreement that:

All variations to the Matrix and guidelines to accommodate changing needs in the workplace shall be carried out by the Training Board of Reference and endorsed by the Shipyard Consultative Committee.

(TDS, 1994:5).

As the Research and Development Managers noted in discussing the benefits of this extensive investment :

The training solutions and programs have effectively supported the aims of our company to produce a quality product to specification..... if we don't we will not survive, so we see this as an investment not a cost.... that is why we continue to invest in training.....

The response of the workforce to these changes can be seen in the uptake of training and development course and the attitude to training and development is typified by the comments of a maintenance employee:

The work is enjoyable and challenging and the skills I am learning will give me security for tomorrow here or with somebody else.

The relationship between the development of functional flexibility, skill development and the enterprise agreement are explored in more detail in section 7.9.

7.8.3 Financial Flexibility

Financial flexibility is used at the Williamstown Dockyard to promote the development of both numerical and functional flexibility. In the context of functional or *internal* flexibility, financial flexibility is used in conjunction with the Skill Enhancement Program (within the Training Matrix) to facilitate the continuous development of a multi-skilled workforce. To support this process the enterprise agreement incorporates a training allowance (the only allowance included in the enterprise agreement; previously there were 180 allowances).

The Training Allowance provides short-term financial reward for the trainee while on training courses. The acquisition of skills and progressive movement through skill bands via the Skill Enhancement Program provides the long-term financial rewards. Therefore, the financial rewards have been based upon skill acquisition rather than utilisation. The program provides eight levels of skill and two entry levels - tradesperson and operator (there is also financial recognition of the role of Team Leader). Differentials between levels are based on recognisable skill levels, and opportunities for advancement are open to all employees (see Table 7.2 for details of this scale). In accordance with the development of functional flexibility, the employee may not necessarily use their newly acquired skills immediately, but may be called upon at any time to undertake work for which they have been trained and accredited (Human Resource Officer).

Financial flexibility also facilitates the development of cost-effective numerical or *external* flexibility where sub-contracting is undertaken. The ability to use sub-contractors means that market rates dictate compensation and competition between those sub-contracting for the work (based upon standards of quality). This allows the dockyard management to achieve the most efficient outcome (Employee Relations Manager).

7.9 Analysis of Human Resource Management

In understanding the development of human resource management practices and their relationship to the development of more efficient and effective work organisation at the Williamstown Dockyard, the concept of strategic fit is identified as a useful frame of reference. In particular specific human resource practices (often described as 'Bundles') are emphasised as the key to developing a more effective and efficient organisation (Delery & Doty, 1996). As Guest (1999) explains:

In principle there may be a number of possible combinations or configurations of practices which will lead to high performance...

The other practices fit around these (p. 185).

The research has identified the emphasis on work organisation as the building block upon which the privatised dockyard intended building its human resource practices. In this context, the major human resource practices can be interpreted.

Recruitment and Selection. The first changes management sought in the area of human resource management was in the recruitment and selection of the new workforce after the re-opening of the dockyard in July 1988. As noted above a key procedural element in the development of numerical and functional flexibility was the gearing of staff levels to work troughs. This required the development of a multi-skilled core workforce. As the Human Resource Manager identified:

The selection panel's central theme in recruiting the new workforce was the potential employee's response to broadening their skill base, multi-skilling and the possibility of doing a variety of jobs at and below their station in terms of skill.... This part of the selection process was central to the decision by potential employees and us. It was also the major issue for past staff not continuing with their employment.

These selection criteria saw less than 25 per cent of the original workforce that applied for employment return to the dockyard after July, 1988 (Human Resource Manager). This can be explained by several reasons. Firstly, many of the original workforce retrenched on March 31, had already found alternative employment in their traditional trades. This accounted for the low rate of applications from the original workforce. Secondly, the application of those that did apply may have

been speculative in that having a job already they may have been interested in the opportunities at the new dockyard. This is likely to account for the second major issue of retraining (functional flexibility), as this would not have been an option in their new employment in the late 1980s. Many of the respondents simply refused to accept flexible work practices as a key component of the new work environment at the dockyard (HR Manager). Secondly, many of the original employees who applied did not have the prerequisite skills or potential or desire to up-skill⁴⁴.

Training and Development. As noted, the central theme for management in the development of an efficient and effective dockyard facility was the enhancement of a labour skills to increase responsiveness and adaptability (flexibility), to meet the needs and demands of a market environment (Senior Manager). With the procedural flexibility secured through the enterprise agreement, providing a reduction in staff and job classifications, and three trade unions representing the newly recruited workforce, there was opportunity to re-shape work patterns and practices.

The first step in the restructuring process was the development of the skill base of the core workforce⁴⁵. To support this move to a multi-skilled workforce, management invested heavily in training and development (Human Resource Manager). In real terms, the dockyard investment is approximately 6 per cent of payroll in training and development (Senior Manager). This figure is best seen in comparison with similar organisations (in the manufacturing sector) where investment in training and development is less than 2 per of payroll per annum (Human Resource Manager). The importance placed on this aspect of

⁴⁴ It is worth noting that neither the individual trade unions nor the ACTU detected any problems or a perception of selective strategies in the recruitment and selection process to exclude known union activists or representative from the previous workforce.

⁴⁵ Whilst the development of skill mainly focuses on the core workforce, programs like the ABPDP and the development of TQM practices have been important processes management has used to integrate external suppliers.

development was highlighted by a senior manager who stated: “This investment was planned and systematic, with appropriate feedback and accreditation developed with external providers (TAFE and University)”. The development of training as a mechanism for the development of a multi-skilled workforce focused on the Skill Enhancement Program.

The Skill Enhancement Program or SEP underpins the training and development process by providing the framework for employees to improve their skill base. As the Enterprise Agreement states:

(The SEP).... enables each person to complete, to the maximum extent, whole jobs, ie., all of the tasks associated with a particular job..... to enable employees to extend their existing skills and acquire new skills with the express purpose of ensuring that the last criteria, individual competence, is met and to progress to the highest possible skill level in their appropriate area (AMECON, 1990:74).

As the Employee Relations Manager noted:

.... to be successful all elements must be looked at and in this context management has put a large amount of resources into the program to ensure the systematic development of skills rather than taking an ad-hoc view or expecting the external market to provide solutions.

Management initiated the training framework by setting up a Training Board comprising both management and employee representatives. The Board’s responsibilities include the design, development, content and evaluation of the SEP. In order to progress through the levels of competence, a combination of

written exams and on-the-job demonstrations to both the skill trainer and foreman are undertaken (Human Resource Officer).

A key assumption incorporated into the training and development process is that each employee is expected to move to jobs for which they have been evaluated as and when required (AMECON, 1990). The Employee Relations Manager noted that this is actively managed to ensure that skills are utilised and that employees see the value in the continuous development of their own skills. As noted above, both the Employee Relations Manager and the Human Resource Manager emphasised the importance of developing training support to provide a framework for the development of employee's skills in a logical and systematic manner. To ensure this took place, the Training Board developed a Training Matrix.

The Training Matrix provides the framework within which training and development is organised and co-ordinated. The Matrix incorporates two streams, reflecting the classifications of tradesperson and non-tradesperson/operator. There are eight classifications within the skillbands and as Table 7.3 illustrates, entry level is dependent upon initial skill accreditation. Within the skill-bands there are a number of steps which "reflect the accumulation of skills and incremental advancement" (AMECON, 1990:73). These bands are incrementally weighted to reflect their level of difficulty and complexity (see Appendix 4 for a detailed breakdown) and are closely linked to financial increments (financial flexibility).

The Training Matrix also provided operators with the opportunity to move to the tradesperson program via an adult traineeship (apprenticeship). As noted, recognition is given for prior learning with competence being demonstrated before accreditation is given (Human Resource Officer). In addition, a consultation process is undertaken between employees and their supervisor to

establish goals linked to career development in relation to organisational needs (Employee Relations Manager). From the employee perspective, these changes have been identified as important aspects of the work organisation:

Satisfaction is real high in our jobs.... because if I'm not happy with the job I am doing, I can apply to learn something else, the scope is unlimited... I feel in control and balanced in my work...

This point was reinforced by a supervisor:

It is a great system. 10 year ago it would have been impossible to imagine this change. If a bloke doesn't like a job he has the opportunity to try something else.... I wish this was the case in my day.

As Table 7.3 and Figure 7.5 illustrate, the SEP is flexible in that it allows for the development of vertical and horizontal skills, enabling a employee to undertake a broad-based spectrum of skill development and carry out a whole task. The enterprise agreement does note that skill development is integrated with the "areas of requirement" (AMECON; 1990:75) to ensure that training remains focused and cost-effective. As the Human Resource Manager noted:

Each matrix represents a summary of the tasks or skills normally associated with, but not confined to a range of traditional trade craft-based classifications. For example, a so-called marine fabricator's matrix includes task skills traditionally associated with boilermaking, welding, sheet metal working and blacksmithing.

This provides the opportunity to develop a broad base of associated skills - an opportunity not previously sanctioned because of the multiplicity of trade unions and lines of demarcation.

In addition to the SEP, the Training Board also developed the Shipbuilding Technology Program. The focus of this program has been the development of skills required for the dockyard's major undertaking - the ANZAC Frigate Project. This program adopted the techniques of Open Learning⁴⁶ and as the Human Resource Officer indicated the focus has been to:

... replace existing modules within the Australian Technical and Further Education (TAFE) Engineering and Management accredited courses, with modules that are specific to the shipbuilding and heavy engineering industries.

Whilst this program has replaced modules provided by external providers, most are studied in conjunction with core modules from TAFE courses up to advanced levels in engineering and management. As Macneil (1997:276) notes the AMECON modules include:

- Supervision and the principles of management;
- total quality management;
- ship structures 1 and 2; and
- design for optimum production.

As Figure 7.6 illustrates, accreditation by external training providers enables participants in the course to go on to further (external) study.

⁴⁶ Open learning is a flexible form of home study in which units are completed at the student's pace.

Table 7.3 Skill levels Determining Pay Rates at Williamstown Dockyard

Level	Skill Proficiency
1	Highest level - Team Leader AA Technical Specialist or Team Leader. This level provides dual career paths of Technical Specialist or Team Leader
2	Multi-skilled - Leadership Capability It is normally expected that an employee will take approximately 24 months to acquire the necessary training and work experience (and competency) to achieve this level.
3	Shipbuilding Skills With a trade qualification it would be expected that an employee would take 12 months to acquire the skills and work experience to achieve this level.
4	Trade - Equivalent Skills - Team Leader A A non-trades employee is required to complete the in-house (METRC) leadership programs in addition to gaining relevant on-the-job experience. It is estimated that it will take approximately 48 months to achieve this level of competency.
5	Special Skills - Entry Level 2 This is the entry level for employees holding trade qualifications. They Will be required to complete an induction and familiarisation program which takes about 3 months. Non-trade qualified employees are required to complete 24 modules to gain the required points to be appointed to this level.
6	Semi-Skilled Employees would take about 18 months to complete the required training and gain the necessary work experience to be accredited to this level
7	Basic Skills Employees should take approximately six months to complete this training and gain the experience to be accredited at this level.
8	Entry Level - 1 Employees must complete an induction course. Employees will remain on this level for three months to acquire the necessary familiarisation program.

Source TDS Industrial Agreement, 1994:22-23

Figure 7.5 Skills Enhancement – Based Band Skill Development Profile

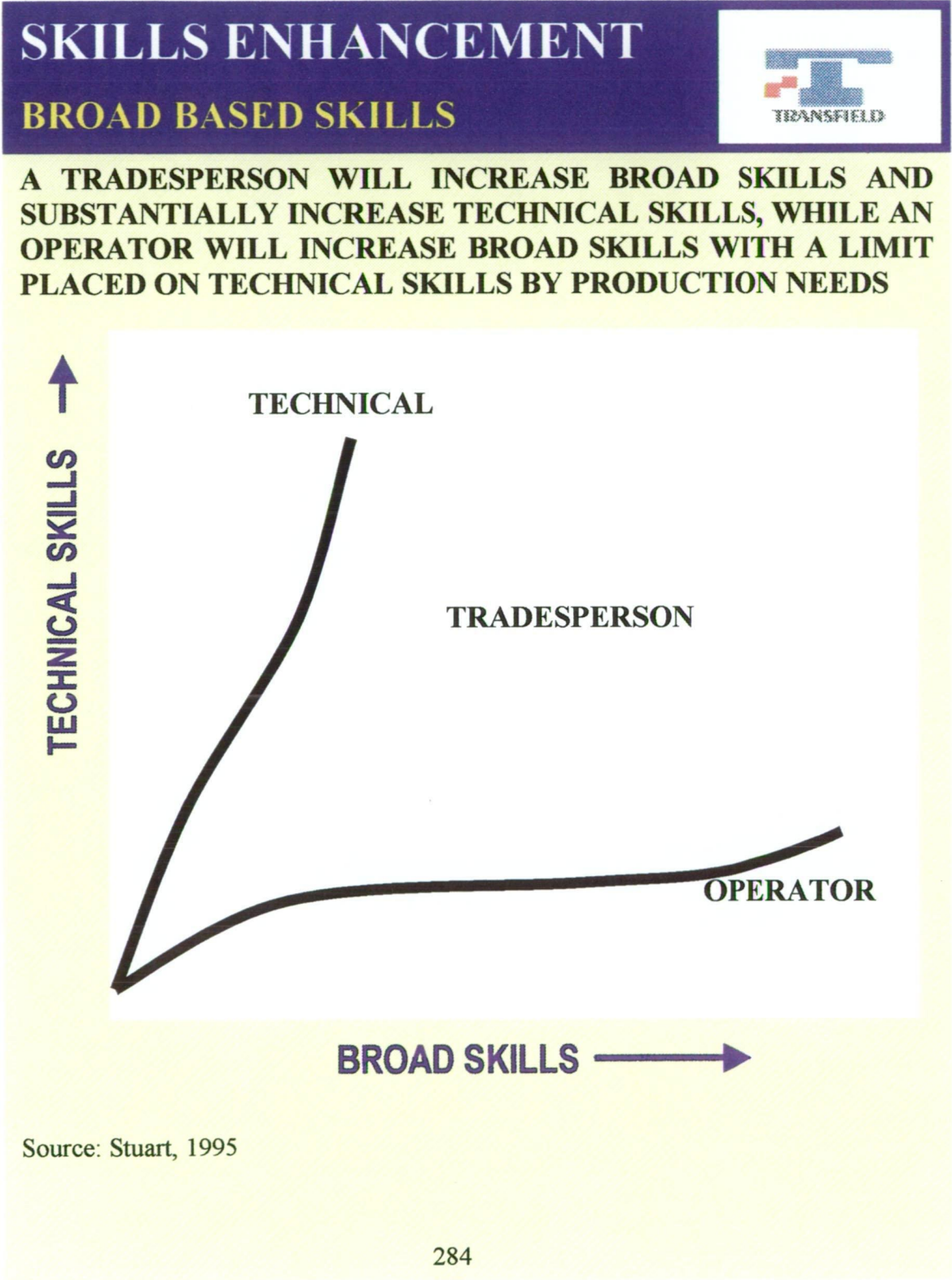
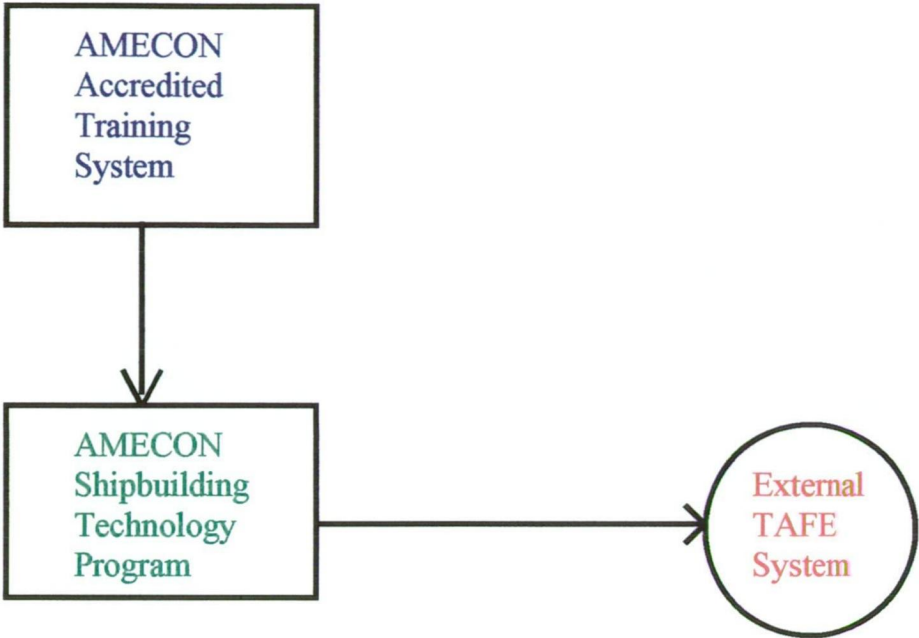


Figure 7.6 Internal and External Training Inter-relationships



Source: TDS, (1995)

Previous experience and qualifications are also recognised. In addition, a fast track process has been developed within the program (Human Resource Officer). The program is self-paced with flexible entry and exit points and uses multi-media technology in its delivery. As noted, the course is externally accredited and allows for credit to be given for entry into Tertiary and Further Education (TAFE) courses. However, as the Human Resource Manager noted:

Employees engaged in Open Learning are not expected to learn in isolation. All trainees become part of a support network made up of peer support, training support, technical experts and internal consultants. The network is designed to assist employees to complete modules with support as required.

Monash University. The focus of this program has been the development of management skills. It is linked to the development of managerial careers within the dockyard. The duration of the program is 12 months and is fully accredited by the participating tertiary institutions, allowing for further study to be undertaken externally (Human Resource Manager). The core areas includes working with internal and external customers (Quality Management), leadership, benchmarking, communications. As Figures 7.7a, and 7.7b identify, the organisation has developed an extensive and integrated range of marine engineering and support programs.

The commitment through on-going financial investment in the development of the workforce allows for the continued evolution of functional flexibility for these core employees. The development of firm-specific skills also reflects the long-term relationship expected between the core employees and the organisation. As an ACTU officer who has a long association with the dockyard noted:

For the employees, these programs not only provide skill enhancement but result in financial reward and career path development which translates to increased job security.

This point was also supported by an external analyst who was involved in monitoring the training process and programs at the dockyard:

The training program is assessed as very good in concept, planning, documentation and methods. It is able to articulate its practices to the tertiary system. The high voluntary participation rate indicates its acceptability and value to staff.

Figure 7.7a The Education and Training Philosophy

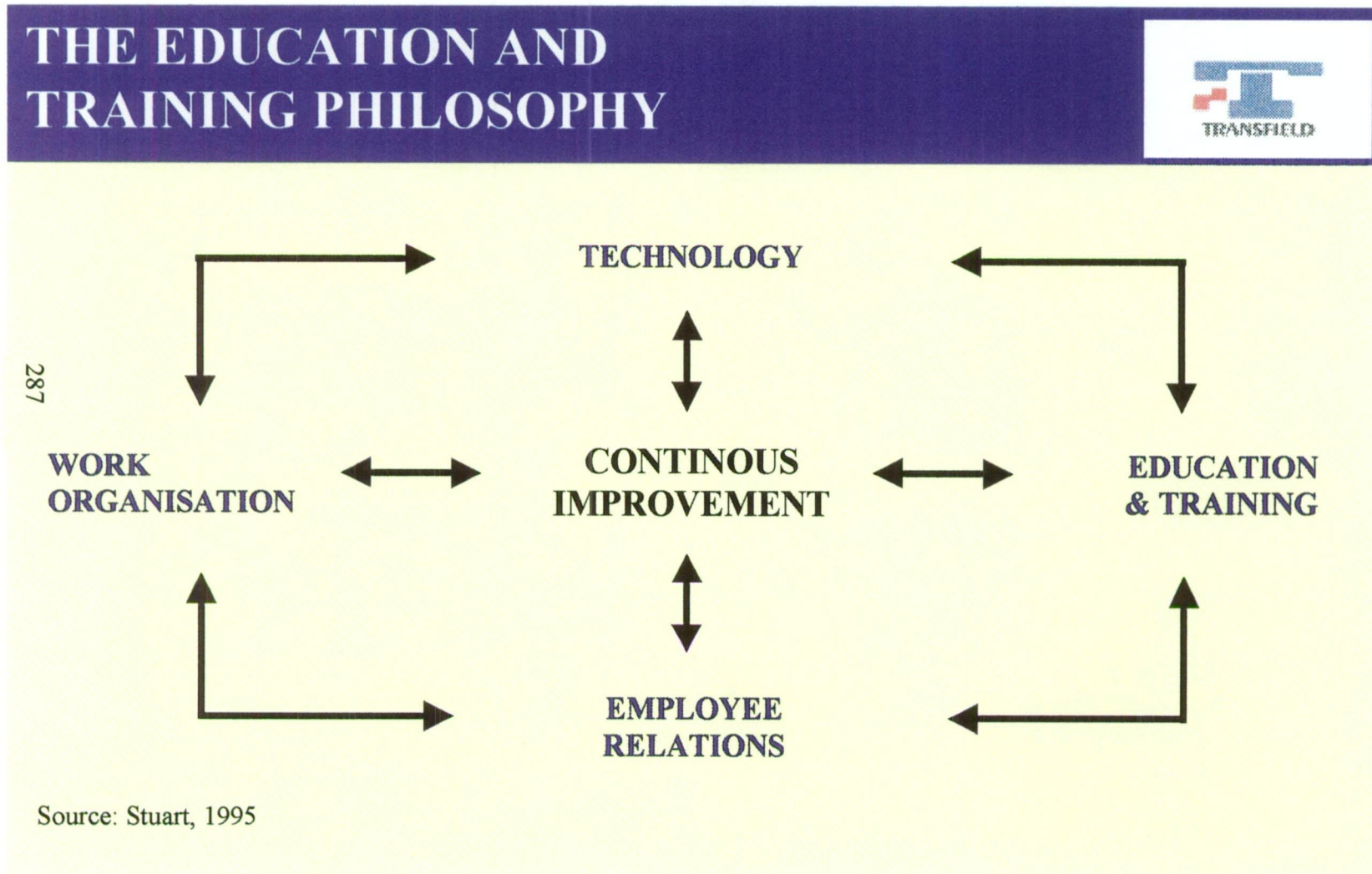
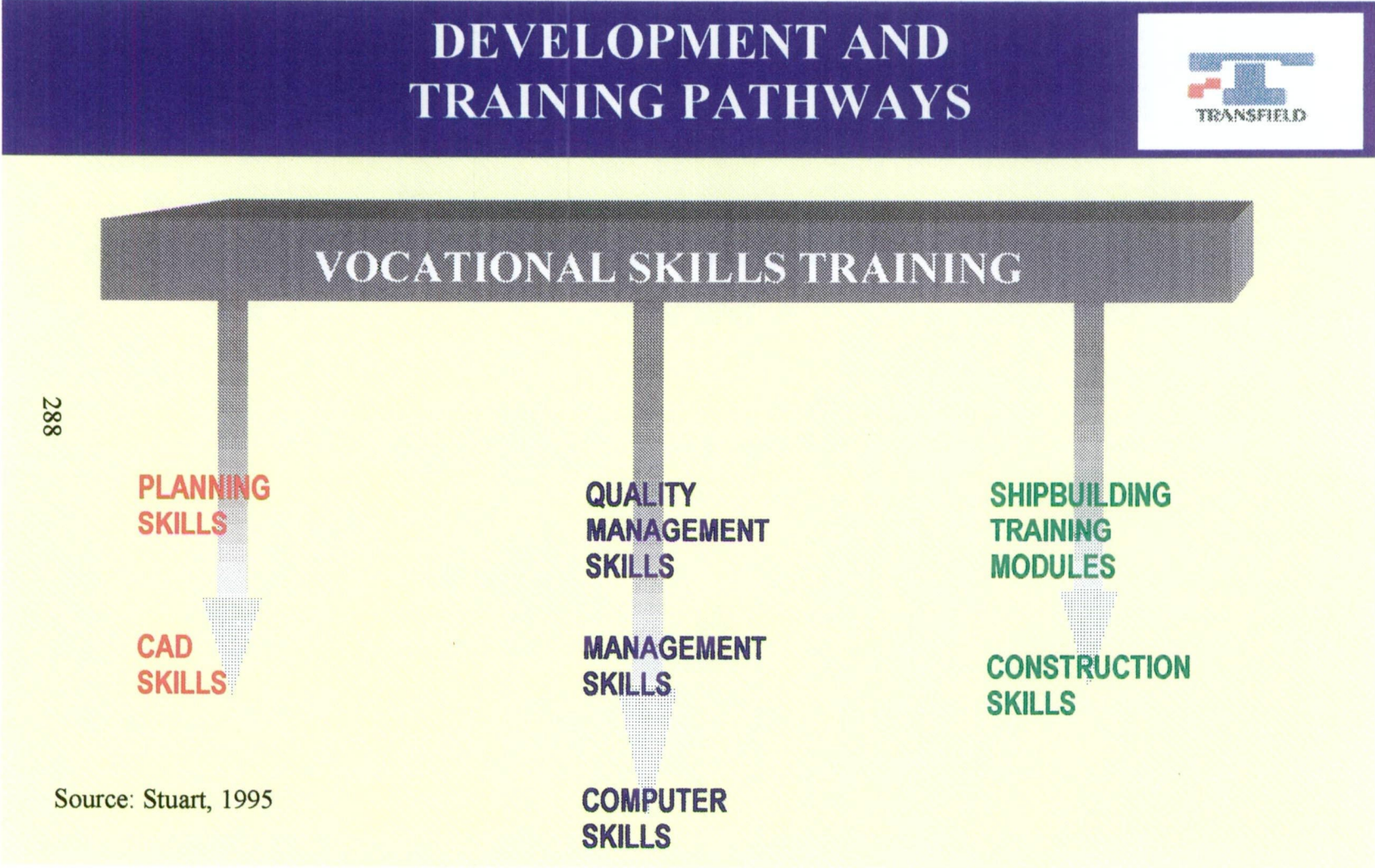


Figure 7.7b Development and Training Pathways



The dockyard also continues to provide training at its Marine Engineering Training and Research Centre (METRC) for its former sister company Transfield Construction. As noted, the training programs developed and co-ordinated by METRC are part of its development as a state-of-the-art marine engineering training facility.

7.10 Conclusions

The restructuring and re-organisation of work patterns and practices at the Williamstown Naval Dockyard caused significant friction and industrial unrest between management and militant trade unions on-site in the initial stages of the restructuring process. It was clear that the historical links with the federal government as owner and primary customer created an artificial environment that could not be sustained (which resulted in the sale of the facility), and would not be sustained by the new management. This point was clearly recognised by management's willingness to retrench the workforce it had inherited and the support of the ACTU in agreeing on three union representation at the dockyard (which it agreed to actively monitor). With the ratification of the enterprise bargaining agreement, the framework for the development of new patterns of work organisation was effectively established.

The development of new patterns of work was extensive, but integrated. The recruitment of a new workforce, which had been selected for its skills and attitude to the development of new work practices, and the development of the Joint Consultation Committee provided for a consensual approach to the development of new and emergent work patterns.

The major changes in work patterns included the development of numerical flexibility through the provision of contractors working on-site and the sub-contracting of major sections of production to Newcastle and Whangarei. This provided management with the opportunity to initiate parallel production, which is considered best practice in modern shipbuilding and provides the opportunity to meet the benchmarks of best practice production standards. The extensive investment in training and development has been a key factor in the development of functional flexibility at the facility. The investment of 6 per cent of payroll has also been instrumental in developing a total quality management culture in the face of initially apathy and cynicism on the part of the workforce. The development of TQM at the dockyard has also been incorporated into numerical flexibility by providing sub-contractors with the pre-requisite skills in this area to ensure they meet the appropriate (benchmark) standards.

In respect of the objectives of this chapter, it is clear that the Williamstown Naval Dockyard has adopted a range of integrated flexible patterns of work organisation, post privatisation (1988-2000). Secondly, there is a high degree of dependence and integration between the development of flexible patterns of work and total quality management across both the internal and external labour markets.

Given the open nature and methodological flexibility of this qualitative research, operational parameters must be established. In accordance with Eisenhardt's (1989) reasoning, research questions should be derived and honed from existing literature. Analysis of the literature on work re-organisation suggests the emergence of new planned patterns of work that account for uncertainties and unanticipated pressures from the external environment. In this research the parameters are defined by a central Research Question and four Propositions. These are outlined in the following chapter.

CHAPTER 8

DISCUSSION AND CONCLUSION

8.1 Chapter Objectives

The objectives of this chapter are to analyse the implications of the research. This is undertaken by firstly, discussing the research findings in relation to the research question and propositions. Secondly, the implications for policy development at an organisational and national level are discussed. Thirdly, an assessment of the inferences for theory development is undertaken. Fourthly, this chapter looks at the implications of this analysis for further research.

8.2 Overview of Analysis

The case study analysis presented in the previous chapters identified and separated the factors associated with the emergence of new patterns of work organisation into the primary constituents of industrial relations, quality, human resource management and flexible work practices to allow for a detailed investigation. In this chapter they are brought together for the purpose of discussion and drawing conclusions.

This chapter interprets and gives meaning to these areas of investigation through the framework of Atkinson's (1984) flexible firm model. The development of these various patterns and practices of work was examined through a research question supported by four propositions within the context of the enterprise as the unit of analysis. This focus allowed for an in-depth examination of the extent to which work patterns and policies being developed

were integrated or fragmented, reactive or planned. In this way, an understanding of the reasons for, and extent of, the development of these patterns of work, as part of a strategy to enhance resource utilisation (thereby enhancing organisational competitiveness), could be examined. From this analysis, wider implications and inferences can be drawn for management, labour and government policy in the areas of work organisation.

The research question and propositions focused on organisational policies and practices within the context of changing market conditions. The findings from this research are presented below.

8.3 Discussion of Findings in Relation to the Research Question:

To what extent do the structures of the enterprise studied reflect the framework of the flexible firm model of work organisation ?

Throughout this investigation it has become increasingly clear that flexibility in labour organisation and utilisation had become a major area of research. However, the empirical evidence at the level of the firm had been limited. The emerging environmental conditions indicate that flexible work patterns and emergent practices such as quality management would have an increasingly significant impact at the level of the firm, as the decentralised labour market provides the platform and opportunity to reform and develop work patterns and practices to enhance enterprise performance.

In this context, the flexible firm model developed by Atkinson (1984) has emerged as a paradigm shift in organisational structure to accommodate these new opportunities. The model has been extensively debated. While critics of the model contend that it is too simplistic, the model provides a useful framework upon which to assess the integrative development of flexible patterns of work

(Procter et al, 1994). In this way the linkage between these complex work patterns and practices at the level of the enterprise can be interpreted and understood. For the organisation under investigation in this thesis - Williamstown Naval Dockyard - the shift in market conditions provided the catalyst for the new management of the dockyard to develop work patterns, policies and practices that reflected the need for more efficient (flexible) utilisation of resources (particularly human).

It is clear from the analysis of the Williamstown Dockyard that the organisational structure exhibits a high degree of relationship to the flexible firm model, both in configuration and in the arrangement of human resource patterns and policies of work organisation. Since 1988, outsourcing and sub-contracting (numerical flexibility) have become increasingly extensive and complex, with the development of more than 1300⁴⁷ sub-contracting relationships. The setting-up of the METRC project with the Victorian state government and involvement in the federal government-initiated Australian Best Practice Demonstration Program, and in more recent times the development of joint ventures and strategic alliances, has extended the core-periphery structure.

The development of a multi-skilled workforce (functional flexibility) has been facilitated by extensive investment in the development of these employees (as noted). Both numerical and functional forms of flexibility are supported and facilitated by the use of financial flexibility, which is linked to skill enhancement for core employees and market rates for sub-contractors. In summarising the findings with regard to the Research Question, the Williamstown Naval Dockyard has developed an organisational structure which strongly reflects and interprets the structure and strategy of the flexible firm model identified by Atkinson (1984).

⁴⁷ Includes both direct and indirect sub-contracting relationships.

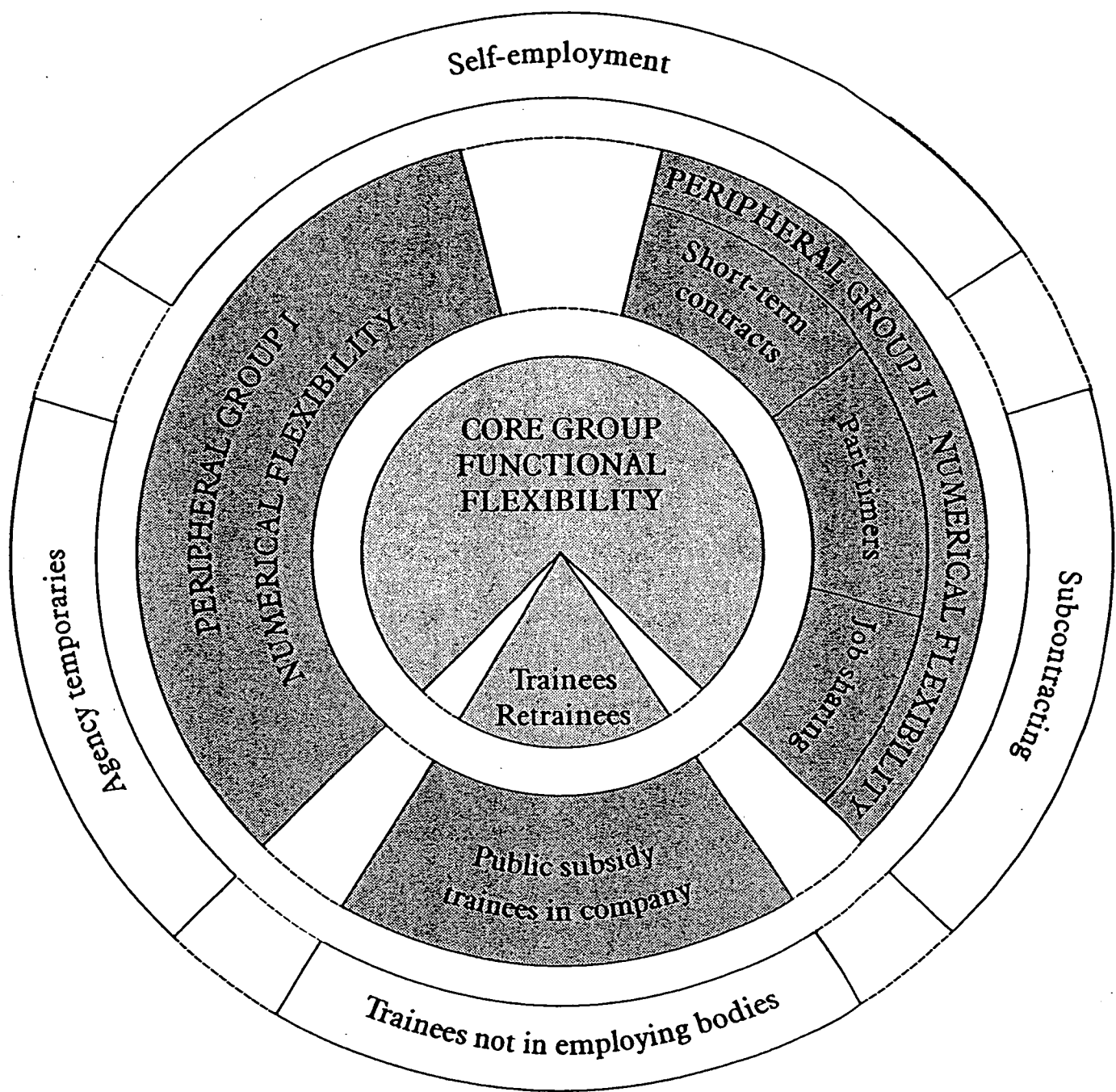
The organisation continues to develop its peripheral structures and relationships, in particular through the on-going Best Practice Demonstration Program, which provides an avenue to develop new sub-contracting relationships. With regard to the second periphery, in response to changing market opportunities and demands, the development of joint ventures and strategic alliances has created an increasingly complex and 'active' organisational structure, which reflects the changing dynamics and focus of this market. A comparison between the ideal and the actual organisational models is illustrated in Figures 8.1 and 8.2 below.

As described by the flexible firm model, it is the development of this high degree of integration between the core of multi-skilled employees (providing functional flexibility) and the sub-contractors (numerical and functional flexibility) which is the key element in the increased efficiency and utilisation of the available human resources. These findings support the view that the flexible firm model presents an organisational structure which can maximise labour utilisation through the development of a sophisticated integration of various labour markets. However, a key point that the model does not establish is how an organisation develops and maintains such a complex organisational structure in a dynamic environment, in particular the regulation and management of the many and varied external linkages and relationships, particularly in a market where quality and reliability are major criteria for success. This point will be explored in the following research proposition.

8.3.1 Discussion of Findings in Relation to the Research Propositions

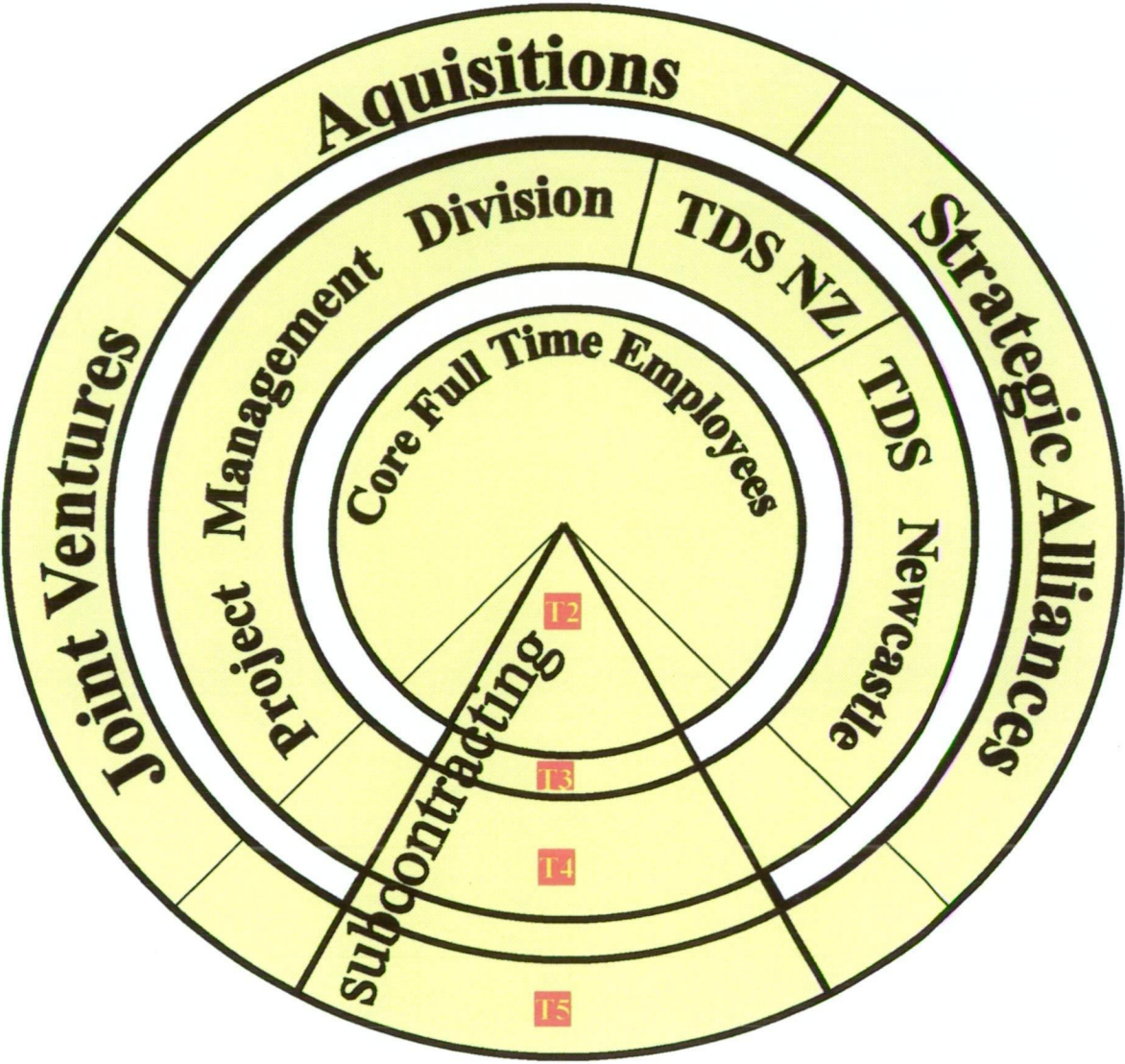
Given the integrative nature of the model (to be fully effective), four related propositions were identified as relevant to this research. These research propositions provide a contextual interpretation related to the development of a procedural framework to facilitate the development of flexible and emergent work patterns and progressively to theory exploration.

Figure 8.1 The IMS - Flexible Firm Model



SOURCE: Atkinson, J. 1985. *Flexibility, Uncertainty and Manpower Management*, Institute for Employment Studies (formerly the Institute of Manpower Studies), Brighton, England.

Figure 8.2 The Flexible Firm Model – Williamstown Navel Dockyard



Proposition 1

In a competitive environment an organisation will seek to enhance employee skill levels through planned investments in training and development.

Central to the establishment of new work practices is the development and maintenance of a well integrated and high-skilled core workforce supported by an equally skilled and knowledgeable peripheral sector which can be 'plugged in' with minimum disruption. Because of the need to effectively compete in a highly dynamic and global market, management focused on developing a generic skill base for its core workforce. The traditional approach to the organisation of work in the shipbuilding industry was based upon a single craft apprenticeship. These work patterns reinforced highly rigid labour market structures and work practices such as lines of demarcation which made resource utilisation inefficient and totally unsuitable for a market-driven environment.

In order to develop a workforce with a broad range of skills, dockyard management committed to significant and planned investment in training and development. The enterprise bargaining agreement was critical in providing the procedural structure (flexibility) to develop a platform upon which these new patterns of work could be established. For the core workforce, the framework has been created to develop an holistic and flexible arrangement to encourage the development of breadth and depth of knowledge, skills and ability. The central element of this framework is the Skill Enhancement Program. At a management level the Management Development Programs have focused on the development of junior and middle management.

The Skill Enhancement Program is a systematic and planned training framework that directs training and development in line with organisational requirements

both in the short and long term. As well as providing the opportunity to create a core of skills for a particular trade, the skill matrix which underpins the Skill Enhancement Program allows staff to develop skills in associated and new areas. The Ship Technology Program and Management Development Programs, run in association with local tertiary institutions, reflect the development of higher-level management skills. The long-term evolution of this internal labour market is identified as essential to ensure the appropriate skills are available within the dockyard as and when required. It also reflects the emphasis placed on the requirements for flexible and adaptable work patterns and practices, with employees available to move jobs according to changing needs and requirements, thus enhancing functional flexibility. In addition, it identifies a long-term (planned) approach to the development of core skills within the organisation.

The investment in training and development has been sustained at approximately 6 per cent of payroll per annum against an industry average of approximately 1.5 per cent. The continued investment in training and development reinforces management's commitment to developing and sustaining a highly skilled and flexible core of employees, which reflects and interprets the flexible firm core workforce.

It is clear that there is a long-term and planned investment in training and development of the workforce at the dockyard to enhance the skill levels of the entire workforce and Proposition 1 is supported. There appears to be a strategic focus to these investments. This point focuses on one of the more controversial aspects of the flexible firm model in terms of its reactive or proactive approach to management of the organisation's human resources. The research strongly indicates the latter. This strategy can also be seen in the resources used to develop highly complex sub-contracting relationships, which are discussed further in Proposition 2 below.

Proposition 2

In a dynamic environment, where product quality and reliability are key issues, the greater the need to develop organisational policies and practices which emphasise an integrative approach to work patterns and practices.

A key element which distinguishes naval shipbuilding from the commercial shipbuilding industry is the need above all else for quality and reliability. The introduction of market conditions removed the guaranteed market/customer (the state) from the dockyard, which had accepted delays and cost overruns without penalty because of the factors of quality and reliability⁴⁸. Its transfer to the private sector required the dockyard to compete on quality and cost competitiveness in order to compete against world-class opposition in a highly competitive market. For dockyard management this meant the development of world-class work practices throughout the facility. As one manager described: “we needed to develop a quality culture”. All managers interviewed in this research identified this as a critical element in firstly, the survival of the facility and secondly, the establishment of Williamstown as a world-class marine engineering facility.

Developing an Internal Quality Culture. The introduction of the Quality Productivity Improvement Program, or QPIP, initiated the focus on developing a TQM philosophy in work practices. In line with the TQM theory, management focused on establishing an internal customer orientation. For the core workforce the development of a quality culture was also linked to enhancing their understanding of work processes, organisation systems and employee empowerment.

⁴⁸ In addition the need to maintain a Naval shipbuilding capacity because of the geographical isolation of Australia in times of war.

Underlying these principles of TQM was the decentralisation of decision-making and the facilitation of team-based work, which was integrated with the development of functional flexibility. It was clear that employees initially viewed this program with a lack of understanding and scepticism. The key element in the eventual success of the QPIP program (and the development of a quality culture) was the sustained investment in training and development, and senior management's support and involvement in the program. This, combined with the gradual understanding by the workforce of how poorly the systems were previously organised, and how they could help change them, was a significant factor in the 'take-up' of these practices. Importantly, the program had its 'champion' in the first Quality Manager. He gave the program a drive and focus. This became clear when he left the dockyard in the late 1990s. As the Planning Manager notes, quality problems began to develop:

Quality problems seem to be related to unplanned movement of people, and the expansion of projects without consideration of the consequences..... this has resulted in a loss of core focus (pause). I think we have taken our eye off the ball.

Importantly, these problems of changing personnel and loss of experience were quickly identified by management. Increased training, combined with a new understanding of the importance of strategically moving people from one project to another (and the resultant succession gaps), have been important in eliminating these problems (Planning Manager; Project Manager ANZAC Frigates). Outcomes from the QPIP experience indicate the acceptance and understanding of the importance of quality as part of the everyday culture of the organisation. Examples of innovations developed by QPIP teams (which won team of the year awards) included a triple-headed welding machine for pipefitters, welders and machinists, which reduces changeover time, and an in-house electronic database and cabling system, which also won a national Engineering Excellence Award in

1996 from a field of 100. Whilst these are small individual examples, they serve to illustrate the development of quality within the culture of the organisation, and reflect the focus of TQM, which is continuous and incremental improvements to increase organisational efficiency (Spencer, 1994; Kerfoot & Knight, 1995).

As noted, a critical factor in establishing Williamstown as a world-class marine engineering facility was the ability to establish comparable performance with the best in the world. Because of the relationship with Blohm and Voss the designer of the ANZAC Frigates, and their reputation within the industry, a benchmarking alliance was a logical development of the on-going relationship. The benchmarking exercise identified performance gaps of up to 40 per cent in 1989 between the two dockyards. Management's commitment to achieving these standards was, as a senior manager put it, "signed in stone", as the dockyard on successfully tendering for the ANZAC Frigate Project agreed a fixed-sum price that would require a 40 per cent increase over the period 1989 to 1994 and approximately 10 to 15 per cent after that. To support this process the dockyard also received financial assistance from the federal government through ABPDP in return for the dissemination of these principles and practices to other organisations.

The benchmarking standards achieved at the Williamstown facility were formally recognised through the achievement of the accreditation of quality standards ASI 822 and AS 3901 (ISO 9001). The Williamstown facility was the first dockyard in Australia to be accredited with this internationally recognised standard of quality.

Developing an External Quality Culture. A key criterion in the ANZAC Frigate contract was the development of the Australian-New Zealand Industry Participation Program (ANZIP). Over the life of the project, 80 per cent of Frigate content had to be sourced from Australian and New Zealand

organisations. Thus while dockyard management was in the process of developing an internal work culture emphasising quality and reliability, it also had to ensure that the same standards could be developed and maintained in its sub-contracting relationships. The use of TQM and the development of a highly-integrated core-periphery organisational structure were seen as central elements in the integration and maintenance of appropriate and standards of quality and reliability in the extensive network of sub-contractors, working both on and off-site. As the Human Resource Manager noted:

Typically there are 400 contracted employees on site to support the core workforce. A key issue here is quality and standards and how they can be maintained. This is achieved through a certification process of government standards that need to be attained. Typically a sub-contractor can be classed as a T2 to T5⁴⁹, depending on how many processes they go back before they reach TDS. All sub-contractors, no matter how many stages back, must be accredited.

To develop and maintain these standards of quality, dockyard staff trained in the areas of quality management and best practice visit and accredit all sub-contracting organisations. As noted in the comments of the Human Resource Manager above, this includes organisations as far as five stages removed from the dockyard. This task was critical to the success of the ANZAC Frigate project and logistically complex. The Planning Manager admitted that on the face of it: "it was daunting, but the willingness of organisations involved in the Frigate Project to accept and actively become involved in the quality process was a major factor in the development of these links".

⁴⁹ Typically a sub-contractor can be a first-generation (T2) subcontractor who deals directly with the dockyard or a second (T3), third (T4), or fourth (T5) level (indirect) of sub-contractor.

However, the Planning Manager also noted that dockyard staff have been seconded to some major sub-contractors in the past to help facilitate the development of a TQM culture to achieve and maintain accreditation. This occurred generally in organisations where delays or recurring problems were identified (Planning Manager). An example, identified by the Planning Manager to illustrate this point, was the organisation providing the turbine engines. The quality was sub-standard on one of these engines, resulting in a hole having to be cut in the side of the ship in order for it to be removed and returned to the manufacturer. Because there is only one manufacturer that meets the ANZIP criteria, the dockyard provided the technical expertise to establish the quality standards required at this sub-contractor. As the Project Manager ANZAC ships noted:

.... the highly integrated quality system is essential as it underpinned the ability to produce on budget, which is critical because of the fixed price contract agreed on the ANZAC Frigate project.... it is essential to get problems sorted out quickly, as any problems or delays must ultimately be absorbed by the dockyard.

A second important development in the production process of the ANZAC Frigates was the modular construction process. As noted, this process facilitates the use of parallel production (rather than the traditional sequential assemblage). This provides the potential for major increases in productivity, with the Williamstown facility acting as a construction point. However, to be effective this system must have a high level of logistical integration analogous to the concept of Just-in-time (Manager Treasury). Changes or delays have the potential to bring all work at the dockyard to a standstill. This has not occurred in the 12 years of the ANZAC Program, but the ANZAC Project Manager acknowledges (and the example above highlights) that there have been problems with sub-contracting work being required to be re-worked. However, in the context of the overall production schedule the system has run efficiently. This to a large extent can be

attributed to the Project Management Systems and the best practice techniques, which constantly monitor and measure the work at the dockyard against pre-defined benchmarks, and information on work scheduling and procedures.

The development of integrative links with both direct and indirect sub-contractors has been facilitated by the concepts of TQM. TQM has provided the common link in developing appropriate work practices and standards required by the dockyard. The demands on the Dockyard to provide a high quality, reliable product on schedule, require the development and integration of work standards in order to be effective. Accreditation of sub-contractors and follow up visits by trained dockyard staff provide a two-way communication flow. This has helped develop a Just-In-Time (JIT) approach to the delivery and assembly of the various parts of the ship and means that quality and deadlines are met throughout the system. The foundation of these integrated work patterns was established with the ABPDP, which the dockyard has used as a vehicle to develop sub-contractors to the 'plug-in' level of integration (Planning Manager). The minimum problems (to date) with these 1300 plus sub-contracting relationships indicate that the integration of these work practices has been highly effective and well managed.

The fact that all the ANZAC ship have been commissioned on time or up to three weeks ahead of schedule (see Table 8.1) is testament to the achievement of standards that are world class. It is also reported through discussions with personnel associated with the RAN and RNZN, that they believe the vessels are of high quality. In terms of re-work, one naval source noted that "this has been minimal and has been caused by changes in naval requirements which have held up work, but these are excusable delays". This development of a customer relationship on site has also helped foster an understanding and relationship between the dockyard and the two respective navies. This allows these changes and modifications to be undertaken with minimal disruption to the work schedule and is an important link in the development of close working relationships.

A secondary outcome of this integrative model has also been documented in a survey of organisations involved in the project. A report by the consulting group Tasman Asia Pacific identified 1300 sub-contractors who were involved in the ANZAC project, mostly small and medium sized businesses. More than 75 per cent were from the manufacturing sector. The study reported that those companies involved had become more innovative, improved business practices, increased their export opportunities and acquired new defence capabilities. Other findings included the belief that involvement in the project had increased export potential. Participants also identified that they had developed one or more programs associated with best practice. In addition, the majority had since developed additional TQM, quality assurance programs and just-in-time management in association with those required by the dockyard (Hopkins, 2000).

It is clear that the dockyard has benefited from the development of a variety of programs designed to enhance the quality and reliability of the materials and work undertaken by the dockyard workforce and external suppliers through the use of TQM and benchmarking industry best practice. This, combined with the development of the Project Management System has been a key element in and maintenance of a highly efficient Just-In-Time system which manages more than 1300 subcontracting relationship to produce high quality work to a schedule benchmarked against world's best practice. It is clear that without the underpinning of a quality culture, the development, co-ordination and integration of these complex work patterns and practices, and the expected consistency in standards and outcomes for the final product, would be almost impossible to maintain. Thus Proposition 2 is supported.

Proposition 3

At the level of the enterprise the combined use of new and flexible patterns of work will measurably increase resource utilisation and effectiveness.

As noted in Chapter 1, the increased interest in new and flexible patterns of work in Advanced Western Market Economies has been identified as a mechanism for enhancing enterprise efficiency through more effective (human) resource utilisation within an increasingly dynamic and competitive economic environment. In this context Boyer (1988) has noted:

From the very definition of plant and workplace flexibility, it is clear that the aim is precisely to stimulate overall productivity. Therefore, in principle, flexibility and productivity go hand in hand.... (p. 230).

However, one of the least tangible elements in the assessment of the effectiveness of new patterns of work organisation is identifying criteria for differentiating improvements in organisational efficiency. Criteria must be both 'significant' and 'demonstrable' (Rimmer, 1994). In this context, the Economic Planning and Advisory Council (EPAC) developed several measures to assess the relationship between workplace reform and more efficient resource utilisation, specifically focused at the enterprise level. EPAC identified the following criteria as both 'significant' and 'demonstratable' in the development of improved competitiveness (1991: 9-20). They include:

- reduced absenteeism and labour turnover;
- improved industrial relations and fewer strikes;

- alterations to the arrangement of working time, including revised shift-working agreements, the reduction or abolition of penalty rates and the absorption of overtime payments into basic salary;
- enhanced levels of skill and job training; better safety standards;
- streamlining the flow of work and the management of materials;
- adoption of an 'export culture' and an international marketing orientation;
- commitment to 'total quality management';
- more open 'management style'.

Importantly, EPAC (1991:9) research points out that: "The greatest benefits will accrue if these areas are addressed together in an integrated management system rather than being tackled piecemeal". These indicators and the level of integration and co-ordination between these elements provide a useful framework upon which the researcher can assess the impact of work restructuring on organisational performance at the dockyard.

Reduced absenteeism and labour turnover. The case study research presented in the previous chapter identified a no-redundancy policy and sequential work practices when the dockyard operated as a public sector utility. This meant employees could be on idle-time for more than 12 months. This often resulted in many employees taking second jobs or simply not turning up for work (Human Resource Manager). As a consequence absenteeism at the dockyard was endemic. The Employee Relations Manager estimated that absenteeism ranged from 30 to 40 per cent. He also noted that in the past huge numbers of employees had frequented the many hotels in the immediate area during all hours of the working day.

The research also identified that the lack of significant sanctions that could be brought against recalcitrant employees was a major factor in the abuse of the system (Human Resource Manager). Pre-privatisation labour turnover figures were not available, but considering the no-redundancy policy and the lack of sanctions which allowed those an idle time to take a second job whilst being paid by the dockyard [information derived from interviews with managers who worked at the dockyard as a public utility] it can be assumed that it would not be financially viable for many of these employees to leave. These points were well illustrated by the 119 shipwrights, employed at the dockyard despite there only being work for 20.

The post-privatisation restructuring eliminated the no-redundancy policy. Work practices were geared to minimum employment requirements (eliminating idle time) rather than peak production levels, which were accommodated by subcontracting. These work practices have seen total absenteeism (both paid and unpaid) average 4 per cent per annum for production employees and less than 2 per cent for staff. Labour turnover is less than 4 per cent (Macneil, 1997). In comparison to manufacturing organisations of a similar size, this is in the lower quartile (Employee Relations Manager). An interesting point worth noting in this context is that of the six hotels within five minutes walk of the Williamstown facility, two are closed, and three have become restaurants. One supervisor observed dryly that “You knew things were changing when the ‘Willy’ (Williamstown) Tavern started cutting back on topless barmaids”.

Improved industrial relations and fewer strikes. Through the 1980s the dockyard averaged 10 per cent of production time lost through industrial disputes. This was arguably a key factor in the dockyard being labelled ‘the worst worksite in Australia’ (White, 1983). As identified in the case study analysis in the previous chapter, the development of a consensus-driven industrial relations framework post-privatisation was a central tenet in the

enterprise bargaining agreement. The implementation of this agreement and the 'modernising' of the industrial relations process has seen industrial unrest as measured in lost production time maintained at 0.1 per cent (Human Resource Manager). As the Employee Relations Manager indicated, the majority of lost time is due to external factors beyond the control of the dockyard; that is national or state disputes, which require full union support. Internally, the periods of industrial activity generally occur on a three year cycle when the enterprise-based agreement is being re-negotiated, and are seen as part of the bargaining process (Employee Relations Manager). The Employee Relations Manager noted that most disputes that arise are procedural and are often dealt with at a shop level, or through his office or the Joint Consultative Committee. There was general consensus from the trade union representatives on this issue. They reinforced the frank and open style of the Joint Consultative Committee, and management's willingness to respect the decisions of the committee.

Alterations to the arrangement of working time, including revised shift-working agreements, the reduction or abolition of penalty rates and the absorption of overtime payments into basic salary. The new industrial relations framework put in place through the enterprise bargaining agreement facilitated the development of worktime flexibility and the absorption of penalty rates by eliminating 180 (financial) allowances. The changes in working time arrangements include variations in shift-working agreements, with special provision to work up to 12 hours a day. Where unforeseen work demands require extended worktime, there is provision in the enterprise agreement to undertake additional work requirements by mutual consent. Performance enhancement is achieved through reduced labour costs and penalty rates (financial flexibility) and, importantly, the integration of sub-contracting (numerical flexibility) and the ability to adjust the labour usage requirements of the core multi-skilled workforce in line with short-term requirements (functional flexibility).

Productions indicators. These measures are the most tangible way to assess the dockyard's performance. When the dockyard was transferred from the public sector, TDS inherited two FFG Class Frigates as 'work-in-progress'. Work had commenced on these frigates (later named HMAS Melbourne and HMAS Newcastle) in March 1985, however, by late 1987 work had fallen 16 months behind schedule (Earnshaw, 1998). The revised timetable for the completion of these two ship was March 1992 for HMAS Melbourne and December 1993 for HMAS Newcastle. HMAS Melbourne was commissioned by the RAN in February 1992, three weeks ahead of schedule and under budget (Lynch, 1996). This prompted the then Prime Minister Paul Keating to note that: "The quality of HMAS Melbourne, assembled at the dockyard, surpassed that of similar American-built ships" (cited in Dixon & Kelly, 1992). The second FFG-Class Frigate, HMAS Newcastle was commissioned in December 1993 (on schedule). After securing the ANZAC Frigate contract in August 1988, the first ship, HMAS ANZAC, was launched in September 1994, a week ahead of schedule, and handed over to the RAN in March 1996. Over the production period (to date) all ANZAC Frigates have been completed on or ahead of time.

Productivity increases between 1988 and 1990 have been estimated at between 600 and 700 per cent per annum (Senior Manager and Planning Manager). Considering the industrial unrest and archaic work practices that existed prior to the restructuring, such increases may not be considered overly impressive. More realistic and significant are the key benchmarks and performance targets set for the ANZAC Frigate project. As noted, the fixed sum contract required the facility to improve its 1989/1990 performance by between 30 and 40 per cent by mid-1994 (Human Resource Manager) in order to achieve and to continue to match international productivity levels. The Employee Relations and Human Resource Manager estimated that thereafter performance standards would have to increase by a further 10-15 per cent by 1996 (to meet the fixed sum agreement

with the Australian and New Zealand governments). As Table 8.1 clearly indicates these targets are being met. A point which the management promotes strongly "... although ship building projects usually run past deadline, the Williamstown dockyard continues to bring the ANZAC-Class Ships in on time...." (Communications Manager cited in Hewitt, 1997:4). In addition, Lynch (1996:19) noted that the ANZAC class ships have been delivered: "... fully functional, ahead of schedule and under budget".

Enhanced levels of skill and job training; better safety standards. The extensive investment in training and development identified in Chapter 7 reflects the level of commitment management has to the development of a highly skilled core/internal workforce as a pre-requisite to the development of a world-class marine engineering facility. This investment has seen the establishment of the Marine Engineering Training and Research Centre (METRC), the Skill Enhancement Program (SEP) and Management Development Programs. These programs have been identified as central tenets in the development of a multi-skilled workforce. As a Senior Manager noted: "All the company's efforts have been to integrate the marine engineering research and training centre with the apprenticeships and TAFE training, to develop a highly-skilled workforce".

With regard to safety standards, in 1992 the dockyard adopted the National Safety Council Five Star Health and Safety Program. The first audit resulted in a four star accreditation, a standing it has retained since. This is considered an exceptional rating in an industry which, like the building industry, is notorious for the innate dangers of working at height, outside or in cramped conditions using highly explosive materials (Macneil, 1997). Days lost through injury have continued to decline, from more than 1500 in the late 1980s to fewer than 300 per annum by the late 1990s (Accountant-Treasury).

Table 8.1 Completion Schedule for FFG and ANZAC Frigates

FFG Frigates	First Steel Cut	Keel Laid	Launched	Commissioned
HMAS Melbourne	4 March 1985	12 July 1985	5 May 1989	15 February 1992
HMAS Newcastle	30 July 1987	21 July 1989	21 February 1992	11 December 1993

ANZAC Frigates	First Steel Cut	Keel Laid	Launched	Delivered to	Commissioned RAN/RNZN
ANZAC	22 October 1992	5 November 1993	16 September 1994	28 March 1996	18 May 1996
TE KAHA	11 February 1993	19 September 1994	22 July 1995	16 May 1997	22 July 1997
ARUNTA	6 May 1994	22 July 1995	28 June 1996	30 October 1998	12 December 1998
TE MANA	17 February 1995	28 June 1996	10 May 1997	19 October 1999	10 December 1999
WARRAMUNGA	15 January 1996	26 July 1997	23 May 1998	15 March 2001	6 June 1999
STUART	4 October 1996	21 July 1999	17 April 1999	Dec 2001*	
PARRAMATTA	16 Septemebr 1997	5 Jun 1999	17 June 2000		
BALLARAT	10 May 2000	5 February 2001	Nov 2002*		
TOOWOOMBA	30 March 2001	Feb 2002*	Oct 2003*		
PERTH	Feb 2002*	Dec 2002*	Sept 2004*		

* estimated date

Source: Tenix Defence Systems

This has resulted in reduced insurance premiums of approximately one third of the industry average (Accountant - Treasury). With regard to environmental safety considerations, investment in noise reduction systems have reduced complaints and saved energy. In addition, the development of appropriate night lighting has reduced hazards and accidents (Employee Relations Manager).

Streamlining the flow of work and the management of materials. As reported, the public sector control systems were virtually non existent. Examples of problems included orders taking up to three months to come from storage depots in Port Melbourne (approximately five kilometres away), resulting in continuous and on-going disruption to work. A security system, which Costigan described in his inquiry as an “insecurity system” (1984:13), led to the dockyard gaining the nickname the ‘Bermuda Triangle’, as stocks and supplies continually disappeared (Employee Relations Manager).

The development of the Cost/Schedule Control System was central to the establishment of a sophisticated Project Management System (PMS). This system was accredited by the Department of Defence under the Australian Standard AS3901/International Standard ISO 9001 standards. The development of these performance standards was acknowledged by Lockheed Martin Company (the world’s largest defence systems manufacturer) in 1996. The joint venture company, LMT, established in Melbourne, has bid for contracts in the South Asia market. In summing up the reason for the development of the joint venture, Mr Paul Johnson, President South Asia region for Lockheed Martin International, noted in announcing the partnership (1996:1):

In seeking a strategic partner in Australia, it was essential to find a company like TDS with a successful track record on large complex project management and one that is financially strong

with a demonstrated commitment and ability to establish, maintain and develop high technology capabilities in the region.

The recognition of the Williamstown facility as a 'best practice' defence project contractor by Lockheed Martin is further acknowledgment of the organisation's standing in the international market. The joint venture company has successfully bid for the federal government's Jindalee Over-the-Horizon Radar Network and Airborne Early Warning and Communications Project, and the State of Victoria's red light and speed camera operations (Boreham, 1998).

Adoption of an 'export culture' and an international marketing orientation. Since the mid-1990s the Marine Engineering Facility has been marketed as a developer of defence systems, with a particular focus on the international market developing in the high technology sector of the defence industry (Manager - Treasury). The development of the ANZAC Ship Support Centre at Williamstown has been central to this refocussing of the organisation. The centre's major purpose is to develop sophisticated technological support systems. The centre develops and tests combat and platform systems and integrates them with ship radar, sonar and command computer systems (currently this is being undertaken for the ANZAC Frigates). The facility also provides naval training for these systems. The joint venture with Lockheed Martin has been a catalyst for the expansion of this part of the business, with a focus on the developing South Asia market (Planning Manager). In addition, TDS has set up an office in Canberra. This has a dual role. The first is to have physical proximity to the federal government and second, (because Canberra is the base for most embassies in Australia) to develop offshore business by promoting the wide range of defence expertise the organisation can offer (R&D Manager).

Whilst the ANZAC Frigate Project remains the major project until 2005-2006, the nature of the shipbuilding industry means that to maintain full capacity new

orders have been required since the mid-1990s. The first international project the dockyard bid for was the Malaysian Patrol Boat Contract. The bid for the \$2 billion contract by TDS (supported by the Australia-Malaysia Business Council-Victoria) began with a conference to disseminate information to potential subcontracting and joint venture companies. More than 300 organisations, mainly from Australia and Malaysia as well as elsewhere in the region, attended the conference in July 1995.

Transfield planned to build the ship on the modular principle developed for the ANZAC Frigates. The separate modules would be built at a variety of centres and assembled in Malaysia. Of the 35 initial bids received for the contract, TDS made the final short list of three. Management believed it had won the contract because the TDS bid was the only one offering a project management approach in which the construction of the patrol boats would take place in Malaysia and Australia (as a joint venture) (Boey, 1995). As Daly (1997) notes:

Transfield Defence Systems' bid was seen as financially superior and technologically and administratively on par if not better than the other 30 bidders and that it had a significant price advantage..... There were claims that the loss was a payback for former Prime Minister Paul Keating's 1993 comments that Dr Mahathir was "recalcitrant"; and that Ms Pauline Hanson had cost the deal (p. 7).

Daly (1997) also indicated that corporate Germany was a more important relationship than corporate Australia. Whilst the reasons for the loss of the Malaysian contract were not made clear, during this period TDS was also tendering for the Philippine's Government Patrol Boat contract. In August 1995 then President Fidel Ramos toured the facility and held talks with chief executive Dr John White on a variety of issues, including the patrol boat contract and the feasibility of long-term collaboration between the Australian defence industry and

the Philippines Government. TDS won the contract in the face of strong competition similar to that for the Malaysian contract. This contract, awarded in December 1997, provides for a long-term relationship as Murdoch (1997a) noted:

The deal would position TDS to benefit from billion-dollar contracts to modernise the Philippines defence forces over the next 15 years.... The deal to build the Philippines boats, which will be fitted with helicopter landing pads and decompression chambers, could eventually be more lucrative than the Malaysian contract..... Although the Philippines is made up of 7100 islands, its coastguard has only two unreliable 26-year-old rescue boats, the patrol fleet is aging and virtually powerless to defend the country's disputed territory in the Spratly Islands area of the South China Sea.... (p.5).

After signing the agreement in December 1997, President Ramos was quoted regarding the contract as stating: "This modernisation program was amongst the biggest ever undertaken in Asia and would give priority to the patrol boats" (cited in Murdoch, 1997b:3). As Murdoch continues: "Tenix is keen to build at the Williamstown dockyard (as well as) investigating setting up a shipbuilding facility in the Philippines...". The first two 56 metre patrol boats, the San Juan and the Don Emilio, were commissioned into the Philippine Coast Guard in 1999 and 2000 respectively. Negotiations are currently in progress to build a larger fleet of fast response naval ships (Communications Manager).

These events reinforce the competitive nature of the industry and help contextualise the achievements made at the Williamstown facility, its international standing and the increasing export-orientated culture.

Commitment to 'Total Quality Management' (TQM). Clear indications of commitment to the concepts of TQM have been identified in this research, with

the development of the Quality Productivity Improvement Programs (QPIP); the Dockyard's association with the Australian Best Practice Demonstration Program; and the benchmarking of quality externally with sub-contractors and internally with Blohm and Voss. These foundations provided the platform and framework for the accreditation of the facility to ISO quality standards. This accreditation is acknowledgment that the dockyard is achieving and maintaining internationally competitive standards in a highly competitive industry. This has translated into increased opportunities (which can be linked to the development of an export culture, as discussed above). Putting this commitment to quality into context, the facility has achieved:

- The successful adoption of QPIP teams;
- The successful completion of all five ABPDP Projects;
- The accreditation of its Project Management System by the Department of Defence;
- The accreditation of Australian Standards AS3901/International Standard ISO 9001;
- Winner in the annual National Awards for IT Excellence for a computerised system for complex cabling (1996).

More open management style. The development of the enterprise-based or 'local island' agreement, provided the framework to develop and regulate the work environment at the dockyard. To develop a more open or consensus approach to the management of the employment relationship, dockyard management put in place joint processes for decision-making and dispute resolution through the establishment of a Joint Consultative Committee (JCC). These procedural changes have facilitated an increase in communication, understanding and dissemination of information between management and unions and developed an open and frank forum which has facilitated a consensus

approach to decision making in the dockyard. This is reflected in the general attitude of management and union representatives interviewed in this research, and the annual disputation rate of around 0.1 per cent per annum - compared to 10 per cent per annum in the early and mid-1980s.

To emphasise the growing importance of the JCC in the management of the dockyard, it has during the 1990s matured into a unified bargaining forum as decentralised bargaining has emerged as the major negotiating process between management and unions in Australia. The JCC provides a forum and opportunity for management and unions to put forward issues for discussion and to develop joint recommendations. The membership of the committee - three management and three union representatives - and the acceptance that management will abide by the rulings of the JCC⁵⁰ have established the forum as the core of a consensus-driven approach to the work organisation and the development of an integrative, responsive and adaptable enterprise.

Assessment of Proposition 3 - Resource Utilisation

It is clear that management has considered organisational resource utilisation from a variety of perspectives. The findings, using the EPAC research, indicate a high level of integration between these work patterns and practices as a factor in gaining the maximum and effective utilisation of resources. The fact that all ANZAC Frigates to date (March 2001) have been completed on or ahead of schedule indicates a continuing achievement of more efficient resource utilisation to maintain a competitive position in a highly competitive market. Analysis of these EPAC criteria, identifies a high level of integration which is reflected in the level of improvement in work performance. This indicates strong support for Proposition 3.

⁵⁰ This has been the case to date.

Proposition 4

The development of a flexible organisational structure will allow management to reconfigure the organisation to take advantage of changing market conditions.

A primary feature in the development of a core-periphery organisational structure is the ability of an enterprise to adjust the mix of internal and external resources efficiently and effectively to enable it to adapt to changing market demands and conditions. In this context, the expectation would be that the organisational structure (while maintaining the core-periphery form or structure) is constantly evolving and changing as project demands change and new opportunities present themselves.

As noted earlier, the defence industry is extremely competitive and project based. This has exerted a strong influence over the development of a relatively complex and dynamic organisational structure. The major external (or peripheral) linkages developed by the dockyard have been with suppliers and major customers for the ANZAC Frigate project. The number of suppliers or contractors to the Williamstown facility exceeds 1300 (Planning Manager). This close linkage of the core enterprise (Williamstown dockyard) and sub-contractors up to five stages removed from the dockyard, indicates the extensive development of ties between the internal and external organisation (see Figure 8.2). In addition, the respective navies of Australia and New Zealand as the major customers until 2005-2006, have been encouraged to locate naval staff on site to facilitate the development of a close working relationship between the parties.

Since the mid-1990s management has increasingly sought and developed strategic alliances and joint ventures, which are an important aspect of this

global industry. This is reflected in the development of the dockyard's organisational structure. The first venture entered into was the development of the Marine Engineering Training Research Centre (METRC) with the Victorian state government, based at the dockyard. This centre is a state-of-the-art training facility developed to promote marine and heavy engineering (Macneil, 1996). From the Victorian government's perspective, the facility would provide training and a focal point in the South-East Asian region for marine engineering (Planning Manager). This facility has since become part of the dockyard's infrastructure.

In August 1996, after the split with the construction arm of the organisation, TDS developed a joint venture with Lockheed Martin's Ocean, Radar & Sensor System Division - LMT - to supply integrated defence systems to the South Asia market (Hosking, 1996). In a joint venture with Siemens, TDS is developing upgraded electrical and electronic systems for the platforms of the 10 ANZAC Frigates, as well as a range of electrical and electronic defence systems aimed at the South Asia market (Hopkins, 2000).

The structure of the organisation has further developed through a core area of competence in the dockyard, that of off-shore project management and project development. This part of the business is specifically focused on identifying and allocating resources to new opportunities. This reflects the flexibility and versatility of TDS and its ability to break with the conventional organisational model and use its project management 'arms' to develop further external linkages. Management has also identified further partnerships and organisational alliances in knowledge development, market sharing and production (which are currently under consideration).

At a domestic level, TDS acquired the Melbourne-based military airframe and aerospace software manufacture Hawker de Havilland from the British

industrial group BTR in 1998 (Lynch, 1998). In 2000 TDS bought the Adelaide-based advanced technology organisation Vision Systems, which manufactures defence detection systems (Neil, 2000).

The extended nature of this research has allowed for an examination of the development of the dockyard's organisational structure over an extended period. Since privatisation in 1988, the structure of the organisation has reflected the basic core-periphery structure of Atkinson's (1984) flexible firm model. This extensive and long-term analysis identifies that whilst the organisation has developed from a naval shipbuilder to a broad-based defence contractor, it has retained (and arguably enhanced) the core-periphery organisational structure as the relationship has become more complex.

The importance of this structure was also highlighted in the reduction in defence spending by the Australian government in 1999 and 2000 of the order of \$(AUS) 500 000 000, which has had a significant effect on the domestic industry, including Tenix. Key current Tenix projects significantly affected by this include the Echidna and armoured personnel carriers upgrade. Tenix has announced a reduction of its core workforce by the end of 2000 because of this uncertainty. This uncertain situation for future defence work in Australia was resolved to a certain extent with the Federal Government Defence White Paper, released in December 2000. However, this uncertainty has resulted in Tenix refocussing resources into its Project Management Division to investigate the opportunities for oil and gas exploration off the Victorian coast.

This success and development of the dockyard through this period strongly indicates that the flexible firm model is a suitable structure for organisations operating in dynamic and changing markets.

Table 8.2 Summary of Research Findings

Research Question and Propositions		Supported	
		Yes	No
RQ	<i>To what extent do the structures of the enterprise studied reflect the framework of the flexible firm model of work organisation ?</i>	X	
P1	<i>In a competitive environment an organisation will seek to enhance employee skill levels through planned investments in training and development</i>	X	
P2	<i>In a dynamic environment, where product quality and reliability are key issues, the greater the need to develop organisational policies and practices which emphasise an integrative approach to work patterns and practices</i>	X	
P 3	<i>At the level of the enterprise the combined use of new and flexible patterns of work will measurably increase resource utilisation and effectiveness.</i>	X	
P4	<i>The development of a flexible organisational structure will allow management to reconfigure the organisation to take advantage of changing market conditions.</i>	X	

4 The development of strategic alliances and joint ventures and the recent relocation of resources from defence to oil and gas exploration highlights Tenix's ability to take advantage of changing market conditions and opportunities. This reconfiguring of the organisational structure as it accommodates changing demands, opportunities and resource requirements provides strong support for Proposition 4.

8.3 Implications of Policy Development

The development of new and flexible patterns of work has become a major focus for organisations seeking to enhance resource utilisation (Boynton & Victor, 1991; Emmott & Hutchinson, 1998). The findings of this thesis raise several implications for policy development at the enterprise and national level. For governments, the focus has been to develop policies designed to increase the productivity of labour (human resources) by addressing the in-built rigidities of employment patterns. The key areas in policy development have been in the procedural aspects of work organisation and industrial relations (NEDO, 1986; Ozaki, 1999). As Wood (1989) notes:

Governments have debated ways of reducing labour market (including pay) rigidity as well as overall organisational flexibility; managements have been concerned with job flexibility, multi-skilling and increasing their ability to hire and fire; Attention has particularly been given to two types of flexibility. First, what Atkinson and Meager (1986, NEDO, 1986:3) call numerical flexibility or Streeck (1987:290) terms external flexibility, which is concerned with enhancing the firm's ability to adjust labour inputs to fluctuations in output. Second, functional (or internal) flexibility - which is about what workers 'do and consists of a firm's ability to

adjust and deploy the skills of its employees to match the tasks required by its changing workload, production methods and/or technology' (NEDO, 1986:4). Allied to both is pay flexibility, which is concerned with a firm's ability to adjust labour costs, particularly pay, to changing market (both product and labour) conditions (p.1).

In an Australian context, these changes have been a major aspect of successive federal government labour market policies, as part of a process to develop a platform to increase the international competitiveness of Australian organisations (Mathews, 1989; Kelly, 1992; ACIRRT, 1999). As Ozaki (1999) notes this has been driven by:

Economic globalisation and technological innovation which are now exposing enterprises, which used to be sheltered by national borders and national institutions, to harsh competitive pressures. The competitiveness of an enterprise or economy in the globalized market depends largely on its ability to adapt to change and to take advantage of the latest technological innovations. It is widely believed that, to enhance this ability, the labour market must be more flexible (p.1).

The development of these policies in Australia over the past 15 years has provided the framework to develop and integrate various types of work patterns and practices (discussed in this thesis). As noted above, the development of more open domestic and globalised markets will continue to be the catalyst for more efficient and effective patterns of work. In this context, the development of TQM, best practice and benchmarking will become more essential aspects of the organisation of work, as domestic organisations face increasing competition in both domestic and international markets. This makes the flexible firm model an important framework within which to understand and interpret the

development of these patterns and practices of work. The nature of the model provides a structure to integrate the elements of a highly-skilled core workforce, supplemented by a variety of diverse peripheral relationships. What this research has identified is the importance of practices such as TQM, benchmarking and world's best practice to facilitate and integrate the development of more efficient and effective patterns of work, in order to accommodate increasingly dynamic and changing market demands. In the case study organisation - the Williamstown Naval Dockyard - these practices were identified as central to the maintenance of the flexible firm structure.

As noted, there has been little research at the level of the enterprise in Australia into these new patterns of work. This in-depth case study research provided an opportunity to investigate and analyse the development of these patterns of work at enterprise-level within an Australian context. By focusing on the firm as the unit of analysis in this research, the potential advantages for an organisation when a variety of new and flexible patterns of work are utilised in an integrative way can be identified and viewed within a social and economic context. At a national level, the planned deregulation of the labour market and industrial relations system has been an important factor in providing an environment which will continue to facilitate the development of these patterns of work.

An important aspect of the development of new work patterns and practices at the level of the firm identified in the research, has been the extensive and systematic investment in training and development. The in-depth analysis of this case study illustrates the potential advantages the development of these patterns of work can have on an organisation, when undertaken in a planned, holistic and integrative manner. However, it is important to note that policy makers need to consider a variety of factors at the national and enterprise level as the labour market continues deregulation, particular with regard to the

checks and balances the former regulated system provided. As Felstead and Jewson (1999) note:

Social processes within labour markets and workplaces are shaped and influenced by relationships between economic institutions and the wider social system. An understanding of the growth in non-standard employment cannot, therefore, be complete without an analysis of the broader societal context (p. 9).

The development of these work patterns requires significant and long-term investment by the organisation in on-going training and development, in order to create and maintain the required skills, knowledge, and expertise (Pettinger, 1998). In addition, the management of the 'flexible' workforce requires a significant increase in planning and co-ordination by, and the (genuine) support of, senior management, if these patterns of work are to provide the organisation with a competitive advantage. Management also needs to develop a peripheral labour supply which can be 'plugged-in' with minimal disruption to the production process, or provide specialist skills. The variable nature of the employment relationship and the changing demands on internal and external labour must also be managed to ensure the retention and maintenance of these resources. For example, the use of temporary employment could be used as an opportunity or pre-requisite for a permanent position (Atkinson & Rick, 1996). For the multi-skilled workforce there must be opportunities to use the skills developed to ensure they are maintained at a satisfactory level.

As noted, to facilitate the development and the advantages of flexible patterns of work, the employment relationship is likely to be based upon a variation in terms and conditions, as the workforce becomes less uniform. The minimal obligation that the organisation has to the peripheral workforce may mean that their terms, conditions and employment opportunities are significantly less

favourable than the full-time 'core' workforce, despite the fact they may be engaged in work of a similar skill demand. These employees provide quantitative flexibility, therefore the very nature of this relationship places less obligation on the employer to invest in their training or development. They are likely therefore to be caught in a permanent labour pool of low skill work with little opportunity to acquire new skills. For those on fixed-term contracts, casual or part-time work, the lack of entitlements, job insecurity and increased stress, go hand-in-hand with the almost non-existent career prospects (Emmott & Hutchinson, 1998; Legge, 1998). Where the task requires the bringing together of workers of differing backgrounds and terms and conditions, there is the potential for tension and commitment problems. As Geary (1992) identified in his study of permanent and temporary staff working closely, frequent problems and animosity between the groups emerged, to the extent that:

In one instance, the tension between temporary and permanent employees was of such a degree that it compelled the supervisor to stop production for an afternoon so that she could take employees off the shop floor to resolve the differences (p.259).

This conflict between core and non-core employees required the supervisors to spend increasing amounts of time in a close supervisory role, distracting them from their other roles and creating an atmosphere of mistrust. In addition, the ad-hoc nature of the recruitment of temporary workers caused problems for supervisors, who complained of the quality and attitude of these employees as well citing an increasing sense of diminished control over the workforce. This case illustrates some of the potential difficulties that can emerge in managing flexibility.

For multi-skilled employees, flexibility is generally interpreted as a skill formation and enhancement process, which provides the employee with relevant and up-to-date skills and therefore increased opportunity to progress within the organisation (Atkinson, 1984). The development of multi-skilling, which by its nature requires employees to increase their range of tasks, combined with the elimination of work restrictions, offers the employer the opportunity to do more with fewer employees (Wood, 1989). However, this can result in, or create the potential for, work intensification and job insecurity (Emmott & Hutchinson, 1998). Critics of this approach to work organisation point to the de-skilling and work intensification aspects of the downward enlargement of job profiles which fall within the umbrella term of multi-skilling (Pollert, 1988, 1991; TUC, 1986; Garrahan & Stewart, 1992; Legge, 1998). Employees in this context provide efficiencies through cost-cutting rather than skill development. This is becoming increasingly evident in recent research (Emmott & Hutchinson, 1998; ACIRRT, 1999).

In addition, the constant change in work demands requires a continual reassessment and renegotiation of the employment relationship. This redefining of role or position of an employee within the organisation can undermine the relationship between employee and employer (Emmott & Hutchinson, 1998; Felstead & Jewson, 1999). Combined with the increase in stress and potential for job insecurity (with the option to continually reduce the core workforce), these patterns of work can threaten the security of the very employees for whom flexibility was intended as a benefit (Herriot & Anderson, 1997).

These are important issues of which governments and organisations have to take account. They have emerged as key issues in the more deregulated labour markets of the UK and the USA, which exhibit major dislocation between what might be termed core skilled employees and peripheral workers. This is creating a dual-sector workforce and by its very nature a dual-sector society (Burchell,

1989; Payne & Payne, 1993; McLaughlin, 1994; Mylett, 1995). This also poses a serious problem for trade unions as they try to organise and protect these elements of the workforce. Research by Heery and Abbott (2000) indicates that terms and condition are eroded and insecurity increases when the protective shield of trade unionism is removed. As Felstead and Jewson (1999) comment:

These changes have profound implications for material inequalities and personal identities. They also shape political ideologies, managerial discourse and the day-to-day lived experiences of workers. They pose serious challenges to the effectiveness of modes of organisation that have long served the labour movement (p.17).

The deregulation of the labour market and the reform of the industrial relations system reflects the consensus across the political spectrum in Australia since the mid-1980s regarding the need to maximise resource utilisation (particularly human resources) to enable Australian organisations to compete more effectively. A key issue appears to be the pace of change rather than the direction. This is reflected in concerns about the uncontrolled deregulation of the labour market and industrial relations system as identified above. At an enterprise level, contextual factors will continue to dominate the decision-making process. With the continued development of market orientated government policies, including competitive tendering in the public sector, the general hegemony is towards the need to increase the return on resources. However, evidence from the UK (Cousins, 1999) and USA (Rosenburg & Lapidus, 1999) suggests this needs to be undertaken in a way that adds value rather than exploits weaknesses in the labour market (Blanchflower & Freeman, 1994). It is clear therefore, that governments have a key role to play with respect to the development and monitoring of these policies.

The success of the high profile Williamstown Naval Dockyard serves to illustrate and reinforce the potential and possibilities of these patterns of work when used in a value-adding rather than cost reduction manner. The case study identifies the importance of developing these work patterns and practices in an integrative and systematic way, supported by long-term financial commitment and consensus (particularly in industrial relations).

8.4 The Implications for Theory Development

The findings of this exploratory study raise several implications for the theory of work organisation. The theoretical construct of the flexible firm (Atkinson, 1984) was central to examining the integration of various labour markets to enhance resource utilisation and efficiency. It was also important in directing and framing the development of the management of human resources, which allows for the examination of the extent and integration of work patterns and policies. Because of the complexities and dynamic nature of work, the testing of the model provided an opportunity to evaluate the impact of these patterns of work at the level of the enterprise. In this context, this model provides a valuable contribution to exploring the utilisation of human resources within a firm.

As Atkinson (1984) has identified in the development of the model, the actual patterns of work contained within the model do not represent a change in work patterns and practices. It is the way they are integrated that provides a paradigm shift. Thus the framework allows for an investigation of the interaction between the internal and external factors which inform choice. The Williamstown Dockyard has been restructured from the traditional rigid, internal, hierarchical labour market to a dual sector labour market of a core of permanent employees supported by a cluster of peripheral employment relations and activities. It is

the flexibility and integration of these work patterns that provides the increase in resource utilisation.

It is acknowledged that to date detailed research on changing work patterns at the level of the enterprise has been limited (Blyton & Morris, 1991, Bamber et al, 1992). This thesis attempts to bridge this gap through an extended in-depth single case study using the framework of the flexible firm model (Atkinson, 1984) as a point of reference. The nature of this research allows the contextual aspects of the internal and external environment of the enterprise to be taken in account. This is an important aspect of case study research, and one which enables analysis and inference to be undertaken in context (Yin, 1994).

A key aspect identified by this research is the growing complexity of relationships, particularly peripheral development. However, in terms of the theoretical construct, the structure of the core and periphery are maintained. It can be suggested that the flexible firm model provides a useful template for the development of organisational structure in a dynamic market environment.

The findings of this thesis suggest that the flexible firm framework is an important theoretical construct in the development of flexible, adaptable and efficient work patterns and practices. The nature of this research also identifies the changing nature of the organisation's relationships over time, whilst maintaining the core-periphery structure. It is recognised that the findings of this thesis are suggestive rather than conclusive. However, the findings do illustrate the importance of the model and the commitment of resources by the organisation to ensure that the advantages of this approach to work organisation are achieved and maintained. The findings of the thesis support the view that the use of flexible patterns of work in a committed, planned and systematic way can provide an organisation with enhanced resource utilisation, adaptability and

flexibility to market demands and therefore, enhanced organisational performance.

8.5 Implications for Further Research

In Australia, research on the development of new patterns of work has focused on macro-level changes (Rimmer & Zappalla, 1988). This focus has meant that little theory testing at the level of the enterprise has been undertaken. Bamber et al (1992) and Blyton and Turnbull (1991) have called for more qualitative research in the field of work organisation, and in particular the development of flexible patterns of work at the level of the enterprise. Atkinson's (1984) model of the firm was central to this thesis's attempt to fill this lack of research at the enterprise level and to provide a detailed insight into the development, function and maintenance of the work patterns through in-depth research of a single case study organisation. The use of qualitative data proved particularly useful in dealing with an abundant source of information and in yielding a number of findings that have been expressed in the research question and propositions that guided this research. The literature review of emerging patterns of work highlighted the wide, varied and extensive nature of the debate in this field. Through this long-term research, the development of an integrative approach to work patterns and practices in response to the increasingly turbulent and competitive environment was identified as a significant factor in enhancing the effectiveness of an enterprise through more efficient utilisation of human resources.

The research approach taken in this thesis represents an attempt to shift the perspective on competitive advantage in work organisation to the enterprise as the unit of analysis. In this way a more holistic approach to the dynamics that inform the development of these patterns and practices can be investigated. The flexible firm model has attracted wide attention and criticism. It has been

acknowledged as a framework and a benchmark upon which organisations can draw to develop their own particular 'flexible firm' suited to localised products, markets and workforce. To date, there has been little empirical evidence to assess the development, influence, growth and importance of these work patterns and practices at the level of the enterprise. The impact of flexible patterns of work at the level of the enterprise, as illustrated by the performance of the enterprise studied in this research, indicates that their development has been a significant factor in the improved performance of the organisation. In this context, the model makes an important contribution to the area of work organisation. Therefore a conclusion that can be drawn from this thesis is that there is merit in continuing with this approach to research in future studies to assess the continuing development of work patterns and practices and related issues.

8.6 Summary and Conclusion

The limited research into the development of flexible patterns of work at the level of the enterprise in Australia has been the catalyst for this thesis. This research has aimed to empirically assess the emergence and development of new and flexible patterns of work in an Australian context, with the support of the flexible firm model or framework. This approach has allowed an exploratory analysis to be undertaken at the level of the organisation. The nature of this research has highlighted the competitive and dynamic nature of the market in which the case study organisation is situated, and how the Williamstown facility has developed as a competitive player in its industry. This is in stark contrast to its position in the mid-1980s when it was branded the Iron Lung of Australian industry and the worst worksite in Australia. This reflects the significance and importance of the development of new patterns of work organisation. At another level, it serves to illustrate support for the

flexible firm model in an increasingly volatile and uncertain market. It therefore provides a worthwhile contribution to the advancement of the field of work organisation, particularly in an Australian context.

As noted, the research indicated strong support for the flexible firm organisational structure. It is clear that the Dockyard management has been aware of the importance of integrating the various aspects of the flexible firm model through the utilisation of TQM, benchmarking and best practice supported by an extensive and on-going investment in training and development. The research reflects Atkinson's (1984) comment that the model will provide a template upon which organisations will develop and change relationships, whilst maintaining the fundamental core-periphery structure, particularly in an increasingly dynamic market environment. The dockyard remains focused on shipbuilding as its core product, but has continued to develop its high technology defence system business and non-defence aspects of its business.

This final chapter has examined the implication for policy and theory development of work organisation at the level of the organisation and, at a national level through developments in labour market strategies and regulations. Whilst the results of this case study indicate strong support for the flexible firm model, it is recognised, however, that one case study may not be generalisable and does not necessarily hold for all restructuring of work patterns and practices. Overall, this research holds a range of implications for theory development and further research.

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Appendix 1

The International Standard ISO 9000

International Organisation for Standardisation (ISO)

The International Organisation for Standardisation (ISO) is based in Geneva and comprises the various member countries' national standards bodies, such as Standards Australia (SA). In anticipation of these world developments, ISO established a working group in the late 1970s to co-ordinate the development of an internationally accepted set of quality system standards. This culminated in the release of the ISO 9000 family of standards in 1987. These were based on and drew from the best of the standards available. A complementary standard, ISO 8402, was also released to establish a common set of definitions for the terminology used in the standards, to avoid the confusion that accompanied the previous fragmented approach. This 'compendium' of standards gained rapid worldwide acceptance. More than 70 countries including all industrialised nations, accepted these as their national standards. Thus they have become truly internationally accepted standards of quality system management. The basic series of ISO 9000 standards consist of 5 documents:

- | | |
|-------------|---|
| 9000 | dealing with selection and application of the series; |
| 9001 | for contractual/certification situations involving design/development and product creation; |
| 9002 | for contractual/certification situations involving product creation to an agreed specification; |
| 9003 | for contractual/certification situations when confidence in an inspection system is required; |
| 9004 | dealing with the principles of proper management of quality goods and services. |

ISO 9000-1

The whole philosophical basis of the ISO approach is explained in this standard, including the following points:

- The identification of 'stakeholders': Customers, employees, shareholders, suppliers and society at large, each with differing requirements.
- The concept of processes as the means by which all work is accomplished in organisations.
- The need to understand the complex network process in organisations so they can be properly identified, organised, managed and interfaced.
- The role of quality systems as a means of managing this network of processes.
- The value of process documentation.

The key purpose of ISO 9000-1 is to assist with the appropriate selection and application of the standards. It therefore contains descriptions of all of the ISO 9000 family.

ISO 9000-2 to 9000-4

ISO 9000-1 is complemented by **ISO 9000-2: Generic Guidelines for Application of ISO 9001-9003**, which explains briefly how each clause of these standards is meant to be interpreted and implemented.

ISO 9000-4 for Dependability Management deals with specific applications. This document is of a generic nature and is intended to be a starting point of developing a quality system modelled upon the principles contained in the ISO series. Its emphasis is on the most appropriate way to implement a quality system and manage quality for the benefit of the whole organisation and all stakeholders. Of all the standards, its approach to standardisation is most clearly compatible with the principles of TQM, particularly in the way all activities in organisations are regarded as processes with inputs, control systems, outputs and feedback systems. There is strong emphasis on planning and preventative action – that is, on doing things properly in the first place. Approaches to the financial reporting of the effectiveness of quality activities are also introduced. In all these guides, the main message is that it is most important to sort out ‘correct’ thinking about quality and apply it properly within the organisation, rather than to develop an approach to external compliance only.

Adapted from Kruithof, J. & Ryall, J. (1994) *The Quality Standards Handbook*, pp.50-56. Melbourne: The Business Library.

Appendix 2

Shipbuilding Productivity and Industrial Relations in Australia

Report of Australian Shipbuilding Industry Study Mission

September/October 1974

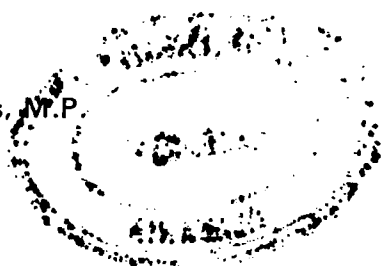
Department of Transport, Australia



**SHIPBUILDING PRODUCTIVITY
and
INDUSTRIAL RELATIONS
in
AUSTRALIA**

**REPORT OF
AUSTRALIAN SHIPBUILDING
INDUSTRY STUDY MISSION
SEPTEMBER/OCTOBER 1974**

The Honourable C. K. Jones, M.P.
Minister for Transport
Parliament House
CANBERRA, A.C.T. 2600



Dear Minister,

On behalf of the members of the 16-man Australian Shipbuilding Industry Study Mission I have pleasure in presenting our final report following the Overseas Study Mission of September-October 1974.

You will recall that a short Interim Report was furnished to you soon after the Mission returned from overseas.

Some members had already made overseas investigations of technical and other aspects of shipbuilding. All members agreed however that the joint tripartite study of industrial problems was a new and enlightening experience. The 'clash of minds' in shipyards and other visits plus the very fruitful discussions among groups or in the Mission as a whole were of great value in understanding the causes of industrial problems and in indicating solutions.

In each of the countries visited the Mission enjoyed the utmost assistance and co-operation from government departments, trade union organisations, shipbuilders and our own embassies and a team spirit within the Mission itself, all of which facilitated the whole investigation.

Members are very appreciative of your initiative in proposing and backing the Mission, and of the support of their fellow workers and organisations in enabling them to make the study.

The Mission hopes that this study tour and the content of this report may assist in the development of the Australian shipbuilding industry through improved industrial relations and in other ways, and thus that the industry may make an active and valuable contribution to the Australian economy.

Yours sincerely,

E. S. CLARKE
Mission Leader

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PREFACE

Origin of the Mission

The Minister for Transport, the Hon. C. K. Jones, M.P., had for some time been concerned at the high prices being quoted by Australian shipbuilders and by delays to construction.

During his visits to Australian shipyards, he had expressed the belief that a basic cause of both of these problems was poor industrial relations and that the responsibility for these lay both with the management of the shipyards and the trade unions.

After discussions with shipbuilders and trade unions he announced that a delegation would proceed overseas to study shipbuilding technology and industrial relations in selected overseas shipyards.

Purpose

'To observe modern shipbuilding technology, plant, manning and conditions, together with management techniques and the organisation and effectiveness of industrial relations, with a view to improving productivity and industrial relations in the Australian shipbuilding industry.'

Acceptance of new technologies is vital to the productivity of the industry. The mission therefore hoped to observe new technologies, especially in relation to such matters as the manning of the relevant machines and operations, conditions of work relating to new technologies, etc.

Significance of Shipbuilding

As a background to the Mission's report the following table gives approximate statistics relating to the shipbuilding industry in each of the five countries involved in this study, and based on available recent statistics.

Country	Shipbuilding		Total Work-force (c)	$\frac{b}{c}$ % (d)
	Tonnage Built G.R.T. p.a. (a)	Employment (b)		
Australia	45 000	10 000	5.5m	.2%
Japan	14.7m	254 000	52.3m	.5%
W. Germany	2.2m	75 000	21.9m	.4%
Sweden	2.3m	29 000	3.4m	.9%
U.K.	1.1m	187 000	23m	.8%

These figures are intended to indicate firstly the relative sizes of the shipbuilding industries of the five countries and secondly the relative importance of the shipbuilding industry within each country.

It should be appreciated that the figures are approximate and are intended only to give an impression of the relativities but it is hoped that it will put the industries into the proper perspective.

Method

Before departure from Australia it had been decided that all members should visit certain Australian shipyards. Four shipyards were therefore visited, the observations and comments being included in Part 3, together with those concerning the countries visited.

Before the Mission left Australia a three-page questionnaire had been sent to each of the countries concerned through the Department of Foreign Affairs to enable the parties whom the Mission would meet to appreciate the purpose of the Mission and to be prepared to answer relevant questions. This questionnaire with the answers and relevant comments is included as Appendix 3 of this Report.

The Mission left Sydney on 20 September 1974 and visited Japan, West Germany, Sweden and the U.K. in that order with a week in each country and returned to Sydney on 22 October.

In each country the procedure was followed of first visiting central trade union organisations, appropriate government departments and shipbuilders associations, and then inspecting a number of shipyards. At these shipyards the matters which the Mission was charged with investigating were discussed with management and trade union representatives both before and after inspecting the shipyards themselves.

In each country meetings were held of two syndicates from the total membership of the Mission and also plenary discussions to review the findings in each country.

Over thirty meetings and shipyard inspections were held during the Mission's tour and in no case did the Mission find other than complete co-operation, willing provision of documents and the offer of answers to written queries which might follow the Mission's return to Australia.

In London on 18 October a draft of an Interim Report was tape recorded at a meeting of the whole Mission. This Report was forwarded to the Minister for Transport on 15 November 1974 and has since been circulated to other Ministers, to shipbuilders and to unions through the ACTU.

Membership

It was a basic concept in the Minister's proposal for the mission that studies should be made jointly by shipyard management, trade union representatives and relevant government officials. Membership (16) was therefore: Shipyard management (4); trade union representatives from shipyards (4); from local area officials (3); Australian Council of Trade Unions (ACTU) (1); Government officials — Department of Transport (2); Department of Labor and Immigration (1); Department of Manufacturing Industry (1).

The administration of the Government's policy on shipbuilding rests with the Department of Transport; the policy on shipbuilding with the Department of Manufacturing Industry; industrial relations and other matters relating to labour problems with the Department of Labor and Immigration.

Part One

**CONCLUSIONS
AND
RECOMMENDATIONS**

CONCLUSIONS

The following are the Mission's principal conclusions regarding the Australian shipbuilding industry following a comparison of it with the industries of the four countries visited.

1. The geographic location and the developing trade pattern of Australia necessitate an efficient and expanded Australian flag merchant fleet.
2. The operation and maintenance of such a merchant fleet requires an efficient and experienced ship repair industry in Australia capable of undertaking all maintenance and repairs up to and including major damage and conversion/modernisation.
3. There exists a close relationship between the ship operating, repair and building industries and this relationship should be developed and encouraged by government policies and from within these industries.
4. The presence of an efficient, viable shipbuilding industry in Australia is in the national need because of the following factors to which it contributes:
 - relationship with shipping and ship repair industries
 - balance of payments
 - employment of labour
 - defence
 - development of expertise over a wide range of engineering disciplines and skills
 - as a basic industry it supports and fosters the growth of other manufacturing industries, e.g. air-conditioning, refrigeration, hydraulics, control equipment, pumping, marine machinery and accessories
5. The productivity of the larger established shipyards in Australia is low in comparison to those successful shipyards observed overseas. The factors contributing to this are:
 - restrictive practices applied by unions
 - multiplicity of unions and trades
 - retention of traditional practices
 - attitudes of management and labour
 - poor communications between management and labour
 - insufficient production planning and application of management techniques
 - insufficient use of available resources and mechanisation
 - non-repetitive orders for new construction
 - lack of continuity of production
6. There exists the need for the shipbuilding industry to promote an active, aggressive marketing and market research organisation in order to develop and maintain a satisfactory order book.
7. It is necessary to establish the short- and long-term requirements for Australian flag ships to meet this country's export/import and coastal trade.

Consequent to this by equating this 'demand' to the productive capacity of an efficient, viable, local industry the degree of rationalisation necessary to the existing industry can be established.

8. Based on the above the degree and requirement for Government assistance and involvement can be assessed encompassing:

- direct subsidy
- official loan guarantees
- loans and interest at less than going commercial rates for domestic sales
- loans and interest at less than going commercial rates for foreign sales
- special industry considerations for allowable depreciation rates
- tax-free reserve funds
- Government-sponsored ship replacement programs
- direct grants to shipyards
- duty-free imports of materials and equipment destined for export ship construction
- rebates on indirect taxes
- insurance of markets by such devices as formal or informal import quotas
- Government funding of ship technical research institutes
- establishment of sets of uniform standards
- financing of orders for a series of uniform ships
- material price controls and price structuring

RECOMMENDATIONS

The Mission submits a number of general recommendations together with others in the fields of management, of trade unions and of both jointly.

A. General

1. *A Shipbuilding Industry Committee be established* at the earliest opportunity with the following terms of reference:
 - (a) To assess the market potential of orders available to the Australian shipbuilding industry based on the current and future development of the Australian shipping industry and related industries over the next ten-year period. This assessment is to be related to current Government policies on merchant and naval ship construction, and in the light of requirements for eligibility for subsidy of vessels built in Australia.
 - (b) To determine the operational characteristics of new designs based on the future shipping requirements as a means of establishing the production facilities necessary for construction.
 - (c) To assess the productive capacity of the present Australian shipbuilding industry and, in conjunction with the findings of (a) and (b) above, to recommend the remedial action necessary to ensure a *viable* and *efficient* shipbuilding industry.
 - (d) Resultant to (c) above to recommend on rationalisation of the shipyards including the provision of financial incentives to improve facilities where necessary.

- (e) Resultant to the above findings to recommend variations and/or alternatives to the Government on assistance to the shipbuilding industry.

It is proposed that on the above Committee there be representatives of the following:

Government: Department of Transport
Department of Manufacturing Industry
Department of Labor and Immigration
Department of Defence (Navy)

Associated

Organisations: Australian Shipbuilders Association
Australian Chamber of Shipping
Australian Shiprepairers Group
Relevant Shipbuilders not represented on the Australian Shipbuilders Association
Australian Council of Trade Unions

It is considered that the Committee would be assisted in its investigations by relevant working parties of representatives seconded from the above bodies as applicable.

2. In conjunction with 1 (b) above concerning determination of operational characteristics of future shipping, *a feasibility study be undertaken* as a means of evaluating and developing standard designs of basic ship types to meet these requirements and to obtain the benefits of repetitive production.
3. *Shipowners and seagoing unions should reach agreement* on their requirements for *manning, standards of accommodation etc.* before commencement of construction or preferably before signing of building contract. (Regulations to the Navigation Act are relevant. See Annex A of this Part.)

B. Management

1. Management to recognise a body or committee representing the shipyard unions to negotiate on the unions' behalf. (Refer also Recommendation C.1.)

2. Each shipyard to determine a development program for facilities and new techniques and review the program annually when setting budgets. The following should be borne in mind:

Material and component flow should, as far as possible, be unidirectional.

More general use of magnet and/or vacuum lifting devices.

Fabrication under cover, and building modules as large as possible.

High-level cranes in fabrication areas to be of similar capacity to those serving building berths.

Light high-speed cranes servicing fabrication areas, for handling small parts during assembly.

Survey needs for adequate small machines and tools.

3. Shipyards to take steps to ensure adequate quality control to reduce rework and repair, e.g. accuracy and clarity of drawings, dimensional accuracy in preparation of plates and sections prior to fabrication, welding edge preparation, etc.
4. The quality of roads and transport effectiveness to be analysed to ensure the most efficient methods and units are being used.
5. Management to embark on an effective training scheme for supervisors in leadership, industrial relations etc. to equip them to handle industrial situations at the shop floor level.

6. Shipyard industrial departments to be encouraged to improve communications with the men on the job so that industrial problems can be solved by on-the-job consultation.
7. Consideration be given to the application of the following:
 - Drawing Offices to consider the advantage of issuing working drawings for the production of block units.
 - More effective production planning, from start to finish, including material and equipment ordering in relation to lead time.
 - More attention should be paid to designing for economic production, including standardised components and methods and rationalised steel sizes.
 - The introduction of planned maintenance, with the aim of reducing loss of production caused by breakdowns.
 - More cost-effective staging to be investigated, including alternative materials.
 - Improving the working environment of employees with particular attention to better housekeeping, portable ventilation and lighting where necessary during construction and fitting out.
8. To encourage membership in the Australian Shipbuilders Association and for it to act as a more authoritative body on behalf of members in negotiations with the Government and eventually to develop the ability to act as the accredited representative of the industry in any policy discussions with union shipbuilding councils or committees or a confederation.

C. Trade Unions

1. Unions to recognise a body or committee within each shipyard to negotiate on their behalf and accept decisions made by this committee (such decisions having been accepted by management after negotiations).
2. Shipbuilding unions to give close consideration to the demarcation procedures agreed to at the special Federal Unions Conference held 31 October 1972. (See Annex B of this Part.)
3. The objective of full employment for employees within the shipyards needs to be further ensured by:
 - unions accepting (after consultation with management) the principle of subcontracting, to ensure continuity of employment to permanent employees of the yard;
 - allowing flexibility (after consultation with management) within craft and non-craft employees and during apprenticeship training, so that each can progress the work to the limit of his ability, thus gaining efficiency and allowing department loadings to be more easily balanced.
4. The ACTU and shipbuilding unions to give serious consideration to resolution and implementation of the following matters:
 - consideration of a 'Shipbuilding Union Confederation' for all unions engaged in the industry;
 - a substantial reduction in the number of unions engaged in shipbuilding and ship repairing;
 - the training of shop stewards in the importance of their representations to management on behalf of their union and men, the economic situation of the industry, and the qualities required for sound leadership;
 - the agreed acceptance of technological changes, new techniques and the maximum utilisation of new equipment.

D. Management and Unions

1. The effective utilisation of craft and non-craft employees and apprentices to be fully investigated by unions and management to broaden their scope and make them more effective in their duties.
2. The training of apprentices and all other employees to be broadened to enable the preceding recommendation to be made effective.
3. Labour and supervision to be organised where possible on squad basis rather than individuals, to encourage team spirit.
4. Negotiation of local 'island' agreements with objectives including the following:
 - unifying conditions
 - assuring levels of employment
 - agreeing on levels of production
 - acceptance of area supervision rather than trade supervision
 - agreement on dispute settlement procedures
 - agreement on manning requirements
5. Recognition as a long-term objective of a national industry agreement.
6. Management and unions to agree on procedures to improve and make effective communication between employees and management. A central consultative steering committee, representative of unions and management, should be set up to develop the consultative frame work of sub-committees and to investigate and make recommendations on such areas as:
 - information
 - future planning
 - development of works amenities
 - safety
 - personnel policy and procedures
 - workplace environment
 - production technology

Annex A

Navigation Act

Navigation (Crew Accommodation) Regulations Part III, Division 1—Submission of Plans.

11. (1) A person to whose order a ship which—
(a) is intended to be registered in Australia; or
(b) is intended to engage in the coasting trade,
is being constructed shall, before the keel of the ship is laid, cause to be submitted to the Director for approval a plan of the ship, on a scale not smaller than one in one hundred, showing clearly the proposed arrangement of the crew accommodation in the ship and its proposed position in relation to other spaces in the ship.
- (2) Every such person shall, before the construction of any part of the crew accommodation is commenced, cause to be submitted to the Director for approval plans of the proposed crew accommodation, on a scale not smaller than one in fifty, showing clearly—
(a) the purpose for which each space in the accommodation is to be appropriated and the proposed disposition of the furnishings, fittings and obstructions in the accommodation; and
(b) the proposed arrangements for supplying water to the crew accommodation and for heating, lighting and ventilating the accommodation.

Annex B

Demarcation

The decision of the Federal Unions Conference on 31 October 1972 relating to procedures for dealing with demarcation was endorsed by the Executive.

The decision is as follows:

'The general objective is to provide procedures to facilitate the settlement of demarcation disputes between the unions *without dissipating the resources of the unions in industrial stoppages between organisations.*

Secondly, the parties to notify in writing their acceptance of the decision of the Demarcation Disputes Committee:

- (a) (i) The ACTU at national level and the respective State Branch at that level shall constitute a panel to deal with demarcation disputes between affiliated unions.
- (ii) To enable such a panel to be constituted each respective ACTU (or State Branch) Grouping be asked to submit the names of two representatives for inclusion on the panel.
Each union involved in the dispute will select a member from the panel.
These representatives, together with the Chairman appointed by the ACTU (or its State Branch), shall, subject to the guidelines laid down, adjudicate on the dispute.
The Chairman need not necessarily be a member of the panel.
- (b) Guidelines
The guidelines to be consistent with ACTU policy and as far as practicable the panel should adopt guidelines which shall without prejudice have regard to the constitutional rights of the specific unions involved. Also consideration of merit without limiting the panel be based on:
 - (i) historical aspects, e.g. custom and practice;
 - (ii) relevance of the most favourable rates and conditions;
 - (iii) and other specific qualifications or considerations.
- (c) On completion and ratification of the final principles and machinery, a comprehensive document be prepared for dissemination to all unions setting out the general principles, machinery and guidelines for dealing with demarcation disputes.'

Appendix 3

Case Study Protocol

1. Background to Study

1.1 Title of Research Project

Developing and Maintaining Competitive Advantage Through New Patterns of Work: A Case Study Of The Williamstown Naval Dockyard

1.2 Focus of the Study

Drawing on the case of the Williamstown Naval Dockyard, this research is concerned with the development of new patterns of work and their relationship to organisational performance. A preliminary review of the literature revealed that attainment of competitive advantage from new and flexible patterns of work is dependent upon the level of integration managements can achieve between the variety of practices and labour markets. The research also suggests that this alignment becomes more critical in more dynamic and volatile environments.

The literature review indicates that concepts and techniques such as TQM, best practice and benchmarking are important factors in aligning the complex and integrated use of multiple of patterns of work and labour markets. For management faced with the challenge of aligning organisational structures within dynamic and competitive markets, the flexible firm or core-periphery model developed by Atkinson (1984), provides a useful framework or template. The internal and external elements which influence performance in a dynamic environment are the issues to be investigated in this inquiry. These elements are listed below.

Pressure for Change:

- Internal and external environment.
- Recognition by the federal government, trade union movement and dockyard management of the need for restructuring of work patterns and practices.

Diagnosis of the Problem:

- Problems clearly identified.
- Core issues identified.

Planning Solutions:

- Formulation of aims and objectives.
- Setting out methodology.

Implementation:

- Conduct of the restructuring process.
- Tactics and strategies adopted by the various stakeholders.
- Timing and progress.
- Reactions and resistance to the restructuring process.

Feedback:

- Evaluation of the outcomes of the restructuring process.
- The relationship of the restructuring process with contemporary theories of work organisation.

1.3 Problem Definition and the Research Question

Work re-organisation may be viewed as a process that occurs over time, and which is influenced by multiple stakeholders and the environment. This suggests that contextual considerations are relevant in analysing the re-structuring process. The elements of time and context provide a useful framework within which to examine new and emerging patterns of work organisation.

The research implication of this holistic and contextually-based approach is the need to interpret the meanings which the actors ascribe to their own behaviour and to the behaviour of others, within the context of the underlying structures and perceptions of the situation (Stake, 1994). As these abstractions and concerns will only become apparent in the course of the inquiry, they will emerge as the problems which the study seeks to address. The identification of these problems will, in turn, define the research design (Babbie, 1995; Burgess, 1982).

To explore these problems, the following central research question was developed:

Research Question

To what extent do the structures of the enterprise studied reflect the framework of the flexible firm model of work organisation?

From the research question, a series of propositions will be developed in order to address the explanatory purpose of the inquiry:

Proposition 1

In a competitive environment an organisation will seek to enhance employee skill levels through planned investments in training and development

Proposition 2

In a period of intensive change, the greater the need to develop organisational policies and practices which emphasise a consensual and integrative approach to work patterns and practices.

Proposition 3

At the level of the enterprise the combined use of new and flexible patterns of work will measurably increase resource utilisation and effectiveness.

Proposition 4

The development of a flexible organisational structure will allow management to reconfigure the organisation to take advantage of changing market conditions.

2. Case Study Procedures

2.1 The Focal Case Study

The Williamstown Naval Dockyard was identified for research in this thesis because it meets the criteria which emerged from the literature review as relevant to the objectives of the study. These criteria include:

- Changes in the work patterns and practices significant enough in scale and scope to justify detailed study.
- The organisation was the first public sector utility in Australia to be transferred to the private sector and the rigour of a market environment. As such the case represents a clear exemplar of an attempt at realignment of work patterns and practices with the external environment.
- The re-organisation of the work patterns and practices occurred at a definable point in time.

2.2 Accessing the Data

Initial contact will be made with the human resource manager (see letters attached), to outline the research proposal and obtain formal acceptance of the project (this is a defence contractor and as such the research requires security clearance). Because of the contextual form of the analysis and the multiple stakeholders involved, longitudinal data will need to be obtained. Several sources can be identified:

- Senior and middle management of the Williamtown Naval Dockyard;
- Supervisors of the Williamtown Naval Dockyard;
- Employees (past and present) of the Williamtown Naval Dockyard;

- Trade unions representatives;
- Public servants;
- Naval personnel;
- Historical documents, records and reports;
- Hansard of the Federal parliament of Australia;
- Quality archival information on the history of the dockyard as a public sector utility.

Informants will be asked to participate in largely semi-structured interviews and assured of the confidentiality of their contribution. While interviews will focus on the relevant issues emerging from the review of the literature and case documents, the participants will determine the essential content of the sessions. In consideration of the sensitive nature of the research interviews will not be recorded. Detailed written notes will be made immediately after the discussion, in order to preserve the detail and quality of the exchange, and to aid analysis.

2.3 Research Design

Based on the recommendations of Denzin and Lincoln (1994) and Yin (1994), the following elements will contribute the research design:

2.3.1 The Research Question

The primary determinants of research design will be the research question (Kerlinger, 1986) augmented by the problems which become evident during the inquiry. As the reason for wanting the question answered should also be considered in the research design (Allen, 1991), the objectives of the study will also be taken into account.

2.3.2 Unit of analysis

Having established the research question, it will be possible to specify the particular elements, or unit of analysis, to be investigated (Babbie, 1995). The primary unit of analysis will be the management of the organisation undertaking a reorganisation of work patterns and practices. The environmental entities will be (a) the organisation's external influences of the economic, political and industrial (naval shipbuilding) environment and (b) the internal influences of the organisation and its management, which will constitute the secondary units of analysis. The respective attitudes, values and behaviours of the actors will form the subordinate units of analysis, the characteristics of which will be determined from the data, which emerge from the case study research.

2.3.3 Linking Data to Theory

Once the data gathering has been undertaken, it will be assigned to the appropriate unit of analysis to form 'groups' of concepts. This process is noted in the 'Mode of Analysis' detailed below.

2.3.4 Criteria for Interpreting the Findings

Qualitative research depends on the ability of the investigator to reconstruct, through the interpretive process, the intended meaning behind the information which has been gathered during the inquiry (Odman, 1988). Inherent in interpretation is the risk of making errors by attributing incorrect meaning to the information supplied. Mistakes can be minimised by applying various checks and safeguards to verify emergent propositions and explanations (Marshall & Rossman, 1989). The dominant criteria for interpretation in this thesis will be the comparison of evidence and apparent meaning from alternative sources, and analysing outcomes against rival interpretations.

2.4 Developing Theory

Given the exploratory emphasis of this thesis, the research will take an inductive reasoning approach, whereby the data analysis will examine and refine theory (Babbie, 1995). In this research therefore, theory construction and research will be undertaken as part of the process.

2.5 Mode of Analysis

Data will be managed and analysed using the NUD*IST computer software package. The system explores and codes documents, links them to categories determined by the researcher, produces an index system, and searches text and codes to assist in the testing of theory.

2.6 Case Report

As the research takes an interpretist and ethnographic approach, all issues relating to the contextual analysis of organisation's processes of work re-organisation will be included in the initial narrative of the case. Material found to be redundant will be eliminated at a later point. The case report will be presented in two chapters dealing with the history and development of the shipbuilding industry and the case study organisation to the point of political and industrial change. In writing the report, three factors will be considered: content, audience and composition.

Content

As Stake (1994) suggests that the infinite number of observations available on social objects requires limitations to be placed on research and case reports, the entire history of the Williamstown Naval Dockyard will not be recorded in detail; only relevant factors will be chronicled. These factors, which will dictate the point at which the research is adequate, are to be determined by the purpose of the study and the research question (Guba & Lincoln, 1981).

Audience

Yin (1994:129) observes that:

Because case studies have more potential audiences than other types of research, an essential task in designing the overall case study report is to identify the specific audiences for the report. Each audience has different needs, and no single report will serve all audiences simultaneously.

Whilst the academic community constitutes the primary audience of this thesis, it will also seek to communicate with the wider population. In particular, the report will be styled in such a way that the research subjects will be able to make judgements concerning the plausibility of its contents and conclusions.

Composition

Because the meaning of qualitative research “is in the reading” (Berg, 1989:117) the report will be aimed at gaining and holding reader interest. Walton (1972) believes that case reports should provide readers with a vicarious experience of the case. Therefore this thesis will use ‘thick description’ to engage its readers. Through the case report, readers may be able to assess the researcher’s findings, draw their own conclusions, or be motivated to generate further investigation on the subject.

3. Information Required

The substance of the research question requires the examination of the internal and external environment as they influence the restructuring of work patterns and practices as categorised above.

3.1 Pressures for Work Reorganisation

Data Requirements

- Internal environment leading up to the restructuring of the dockyard.
- External environment (political and economic) leading up to the restructuring of the dockyard.
- Management's attempts to restructure work patterns and practices to accommodate the move to a dynamic market environment.
- The reaction to restructuring by the various stakeholders.

Data Sources

- Williamstown Naval Dockyard employees (past and present).
- Historical accounts (including documents, journals, reports, and quality newspapers).
- Published material from the Williamstown Naval Dockyard
- Key trade union representatives (past and present) and public servants (past and present).

3.2 Diagnosis of the Problem

Data Requirements

- Identification of the problems giving rise to the need for work reorganisation.
- Recognition of the issues surrounding the context of work reorganisation.

Data Sources

- Williamstown Naval Dockyard records and reports.
- Management
- Trade unions
- Federal government policies.
- Economic data and research.

3.3 Planning Solutions

Data Requirements

- The aims and objectives of the management of the Williamstown Naval Dockyard.
- The restructuring process undertaken at the Williamstown Naval Dockyard.
- The new structure of the Williamstown Naval Dockyard.

Data Sources

- Personnel at the Williamstown Naval Dockyard responsible for the task of reorganising work patterns and practices.
- Williamstown Naval Dockyard.- records and reports.
- Federal government of Australia.- records and reports.

- External researcher's published material (specifically the Australian Best Practice Demonstration Program).
- Published records and events related to the restructuring process at the Williamstown Naval Dockyard.
- External personnel involved in the restructuring (for example, the federal government and trade unions).

3.4 Implementation

Data Requirements

- Strategies and tactics adopted by management of the Williamstown Naval Dockyard.
- Detailed accounts of the restructuring process.
- Identification of issues, problems, resistance and solutions.

Data Sources

- Personnel at the Williamstown Naval Dockyard responsible for the restructuring.
- Williamstown Naval Dockyard documents.
- Federal government documents.
- ACTU documents
- Staff affected by the restructuring process.

3.5 **Feedback**

Data Requirements

- Identification of key areas affected by work reorganisation.
- Monitoring of the progress and effectiveness of the restructuring.
- Modifications and reviews of the organisation of work.

Data Sources

- Personnel responsible for the implementation of work patterns, practices and performance.
- Williamstown Naval Dockyard documents and records charting the restructuring process.
- Measured outcomes – from the economic, employee relations and human resource management perspectives.

15 February 1995

COPY

Ms. Wilma Stuart
Human Resource Manager,
Transfield Shipbuilding,
Nelson Place,
Williamstown,
Victoria 3016.

Dear Ms Stuart,

I am writing to you with regard to research I am currently undertaking for my doctoral studies with Professor Peter Dowling at the Department of Management, University of Tasmania. I am particularly interested in the development of new patterns of work and their effect on organisational efficiency and competitive advantage. Professor Dowling has identified the Dockyard as an important example of workplace reform in Australia and worth documenting. I appreciate that you are very busy, however, I would be grateful to have the opportunity to discuss this project with you at a mutually convenient time.

I can be contacted on 9782 0662 or by fax on 9905 5412.

I look forward to hearing from you.

Yours Sincerely,

Peter Holland
Monash University

26 March, 1995

COPY

Ms. Wilma Stuart
Human Resources Manager
Transfield Shipbuilding Pty. Ltd.
Nelson Place
Williamstown Vic. 3016

Re: Research Project

Dear Wilma,

One of my doctoral research students, Mr. Peter Holland, is interested in documenting the success story of the Williamstown shipyard since its acquisition by Transfield. This is a case study which warrants the attention of organisational researchers. There would be no cost to your company and I believe that this project would be of value to Transfield Shipbuilding in terms of the documentation which would be provided to you.

I understand that Peter Holland has written to you in the last week requesting an initial interview to outline his project. I very much hope that you share my view that this research project would be of value and that you are able to assist him. Please feel free to contact me if you would like further information.

Yours sincerely,

Professor Peter J. Dowling
Head, Department of Management

Appendix 4

Transfield Shipbuilding Pty Limited (Victoria)
Industrial Award – Training Matrix



TRANSFIELD SHIPBUILDING PTY LIMITED (VICTORIA)
INDUSTRIAL AWARD
1994 - 1997

Employee:

Name: _____
(Please Print)

Classification: _____

I hereby acknowledge that I have received a copy of the Industrial Award Handbook. I have read and understood the contents of the documents set out in the Arrangement, particularly those applying to the Company's House Rules.

Signature: _____ Date: _____

Employer Representative:

Signature: _____ Date: _____

This page is to be detached and kept by the Company to verify that the person named has received a copy of the Industrial Award

WELCOME TO TRANSFIELD SHIPBUILDING

(Williamstown, Victoria)

This Consent Award is a result of extensive negotiations between the Company and the respondent Unions.

Negotiations were conducted in an open and positive manner, with all employees having the opportunity to consider and understand fully the application and the obligations necessary that go to enhance long-term employment and commitment to excellence.

The conditions of employment and rates of pay contained herein have been developed with the aim of providing for their three year period of operation a clear framework under which all concerned - employees, Unions and the Company, can co-operate to ensure for a safe, productive and healthy working environment.

There are advantages to be enjoyed and gained by all parties strictly adhering to the terms of this Award. Please read this Award and the House Rules, together with the Safety Rules and Regulations which will be issued to you separately.

For the Award to succeed, the same sense of responsibility, commitment and goodwill is required of you that has been evidenced by the parties who negotiated the Award on your behalf.

Transfield's mission is to provide high quality products and services to its customers and maintain an international reputation for excellence in all that it does.

Compliance with the Award will assist in ensuring the safety of yourself and your work mates and that your employment with Transfield Shipbuilding Victoria is satisfying and productive.

TRANSFIELD SHIPBUILDING PTY LIMITED (VICTORIA)

C O N T E N T S

- * INDUSTRIAL AWARD
- * TRAINEESHIP - ADULT TRAINEES
- * COMPANY TRAINING MATRIX MANUAL
PRINCIPLES OF APPROACH FOR TRAINING
AND SKILLS DEVELOPMENT
- * HOUSE RULES
- * REFERENCE MATTERS
 - A.I.R.C.



TRANSFIELD SHIPBUILDING PTY LIMITED (VICTORIA)

INDUSTRIAL AWARD

1994 - 1997

Appendices:

- 1. Traineeships/Adult Trainees**
- 2. Training Matrix Manual**
- 3. House Rules**
- 4. Reference Matters**

TRANSFIELD SHIPBUILDING PTY LIMITED (VICTORIA)

COMPANY TRAINING MATRIX MANUAL

**PRINCIPLES OF APPROACH FOR
TRAINING AND SKILLS DEVELOPMENT**

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COMPANY TRAINING MATRIX MANUAL

TRAINING MATRIX GUIDELINES

Introduction

The overriding intent of the Skills Enhancement Programme is to enable each person to complete, to the maximum practical extent, whole jobs, i.e. all of the tasks associated with a particular job, provided that it is safe, legal sensible, productive and the individual is competent.

The Company will provide training opportunities to enable employees to extend their existing skills and acquire new skills with the express purpose of ensuring that the criterion of "competence" is met.

The Training Matrix

The Training Matrix has one classification - Shipbuilder (Mechanical/Electrical/Production).

The Single Training Matrix will:-

- (a) Ensure employees have required specialist skills for major areas of work and achieve sufficient depth for future career path progression to meet the requirements for nationally recognised training certificates.
- (b) Enable employees to maximise career path opportunities and provide Transfield Shipbuilding Victoria with flexibility through multi-skill training together with the ability to change to new areas of specialists' skills.
- (c) Provide for flexible and relevant training.

The Training Matrix lists the range of tasks that an individual may reasonably be expected to undertake.

There are eight skill levels that reflect the accumulation of points and incremental advancement.

Each level has skill units which are task based and are assigned a number of points depending upon the relative difficulty and complexity of the task.

As an employee completes training and/or testing of specified skills or tasks and can apply those skills to suit production requirements, credit will be given to the value of points associated with those skills. Advancement to a higher level will result from:-

1. Production requirements (i.e. the needs of the Company) for skills within the levels specified.
2. Accumulation of points by the demonstration of required competency.

Recognition of Prior Learning Established Competencies

Where employees are assessed as competent at tasks that have an identified skills unit, they shall be credited with the associated points.

The initial assessment of competence will be completed by a Foreman/Supervisor in consultation with the employee and the Manager responsible for training during a three month probationary period.

Competence must be demonstrated before credit will be given.

Progression

New employees will start at the appropriate levels (level 8 or level 5) and will be given the opportunity to progress to the highest level in accordance with production requirements. Advancement to higher skill levels will be determined by the volume and nature of the Company work requirements for people who are trained and can be achieved through the following steps:-

Level 8 Three month qualifying period during which employees should complete induction and demonstrate competency in literacy and numeracy skills suitable to the work environment.

Level 7 About six months' shipbuilding experience and applies skills from the Training Matrix with a value of 80 points for which the employee is competent. All skills are performed without direct supervision.

Level 6 About eighteen months' shipbuilding experience and applies skills from the Training Matrix with a value of at least 160 points for which the employee is competent. All tasks are performed without supervision.

Level 5 Non Trade

About twenty-four months' shipbuilding experience and applies all skills for which the employee is qualified to carry out the Company's business on or off site.

Applies skills from the Training Matrix with a value of 240 points. Eighty points Level 5, 80 points Level 6 and 80 points Level 7.

Trades Area

New employee with Australian Standard Framework (ASF) Level 3 qualification or equivalent (Trade Entry Level).

Three month qualifying period during which employees should complete induction and demonstrate competency in literacy and numeracy skills suitable to the work environment.

Progression (continued)

Level 4 Non Trades

About forty-eight months' experience and applies skills from the Training Matrix with a value of 240 points. Eighty points from Level 4 and 160 points credited previously including Team Leader skills applicable to Non Trade category Levels 8 to 5.

Trades

About six months' experience within the Shipyard Operations Group and applies skills from the Training Matrix with a value of 320 points. Eighty points from Level 4 and 240 points credited previously.

Level 3 About twelve months' experience within the Shipyard Operations Group and applies skills from the Training Matrix with a value of 400 points. Eighty points from Level 3 and 320 points credited previously.

Level 2 About twenty-four months' experience within the Shipyard Operations Group and applies skills from the Training Matrix with a value of 480 points. Eighty points from Level 2 and 400 points credited previously.

Level 1 About forty-eight months' experience within the Shipyard Operations Group and applies skills from the Training Matrix with a value of 560 points. Eighty points from Level 2 and 480 points credited previously.

N.B.: Team Leaders on this category are able to apply skills to all Levels, 8 to 1, but particularly so with reference from Levels 5 to 1.

Training Plan

During the first three months of employment, a Foreman/Supervisor in consultation with the employee will develop a training plan.

This plan will take into consideration the following:-

- The Company's skills requirements through the various phases of production.
- The employee's current skills.
- Wherever practical, training will be conducted on site during Company time.

Administration

The day to day administration of the Training Matrix and Skills Enhancement Programme will be carried out by the Cost Account Manager responsible for Training and Personnel. All variations to the Matrix and guidelines to accommodate changing needs in the workplace shall be carried out by the Training Board of Reference and endorsed by the Shipyard Consultative Committee.

SHIPBUILDER - TRAINING MATRIX

Level 8

1. New employee (Non Trade Entry).
2. Completes Induction, demonstrates competency in literacy and numeracy skills suitable to the work environment.
3. Completes Basic Ship Terminology Course.
4. Performs housekeeping and accepts responsibility for maintaining standards.
5. Performs all work in a safe manner with due regard to site safety and legislative requirements.
6. Applies all skills for which the employee is competent, to carry out the Company's business on or off site.

SHIPBUILDER - TRAINING MATRIX

Level 7

1. About six months' shipbuilding experience and applies skills from the Training Matrix with a value of 80 points for which the employee is competent. All skills are performed without direct supervision. 10
2. Applies all Level 8 skills as required. 10
3. Fabricates and repairs such items as pipe brackets. 10
4. Demonstrates wood working skills (basic). 5
5. Operates "Porta" power jacking equipment (maximum 10 tonne). 10
6. Imperial/Metric conversion. 10
7. Applies basic oxygen/acetylene skills, including: 10
 - . cutting steel to measurement
 - . to destruction and to remove frozen nuts and bolts.
8. Obtains and utilises Level 2 First Aid Certificate. 10
9. Makes up air/hydraulic hoses complete with fittings, excluding specialist fittings and couplings. 10
10. Operates manufacturing equipment including: 10
 - . radial drill with template or jig
 - . drill sharpening machine
11. Operates pipe laundry plant, including: 15
 - . plant operation/processes
 - . identification of pipe material

Knowledge will be tested.
12. Assists with hydrostatic and/or air testing as a member of a test team. 10
13. Plant Attendant duties including steam generator (steam cleaner) and plant air compressors. 10
14. Performs material handling functions in an acceptable and safe manner. 10
15. Performs basic maintenance practices on tools and equipment. 10

Level 7 (continued)

16.	Completes training for and performs basic skills with air/electric grinding machines.	10
17.	Assists with docking/undocking and movement of equipment and ship modules.	10
18.	Works as part of a launch crew.	10
19.	Operates small tools including impact gun, jack hammer, needle gun and rotary wire brush.	10
20.	Operates manufacturing equipment including: . pedestal drill . power saw	10
21.	Holds OH&SA Boom Type Elevating Work Platform Certification.	10
22.	Holds OH&SA Hoists Certification.	10
23.	Holds Transfield Tow Truck Ticket.	10
24.	Operates Pendant Cranes.	10
25.	Demonstrative knowledge of surface preparation standards.	10
26.	Applies preservative or priming/undercoat/stripe and finishing coatings to surfaces by brush and/or roller.	10
27.	After completing a basic electrical safety training course, replaces globes and tubes.	10
28.	Packing and unpacking of crates and containers in an acceptable manner.	10
29.	Use of stretch wrap package machine.	10
30.	Use of uncrating electric saw/banding and packing tools.	10
31.	Store familiarisation and stock location layout.	10
32.	Undertakes specialised packaging of stores and materials.	10
33.	Receipt of goods including stores procedures and quality inspections.	10
34.	Inflammable Store Operating and Safety Procedures.	10

SHIPBUILDER - TRAINING MATRIX

Level 6

1.	About twenty-four months' shipbuilding experience and applies skills from the Training Matrix, with a value of at least 160 points for which the employee is competent. All tasks are performed without supervision.	
2.	Performs routine maintenance work and inspections, and fabricates and repairs components as required. Installs components, including plate.	
3.	Accepts responsibility for quality of own work.	
4.	Completes fillet welding to procedures ASP 104.902/5 and ASP 104.902/7A for carbon steel.	20
5.	Completes repetitive assembly operations including: . Pipe penetrations . Spools . Stowage . "T" Bar manufacture All processes listed above will involve measuring, marking, tack and fillet welding.	15
6.	Completes dye penetration testing and visual inspection.	10
7.	Carries out basic servicing and maintenance, including any three items listed below: . Mobile equipment . Pumps . Welding equipment . Electric motors/generators/alternators . Petrol/Diesel/LPG engines . Air compressors . Unit and small blast and paint facility.	15
8.	Assists with the installation of shipboard equipment such as ventilation modules, switchboards, consoles and furniture.	10
9.	Directs the distribution of temporary supplies. Installs temporary lighting/ventilation hoses/evacuation alarm systems on board.	10

Level 6 (continued)

10.	Form and/or install/apply the following materials:	
	Insulation batts	5
	High density insulation	10
	Insulation board (Polyamide)	10
	Fire insulation (Fibreglass)	10
	Rubberised lagging material	10
	Calcium silicate	10
	Insulation blankets	15
11.	Carries out abrasive/hydro blasting operations including:	
	set up equipment and plant	5
	using skills to required procedure	10
12.	Operates small blast/paint facility.	15
13.	Operates plate blast and paint line.	15
14.	Holds OH&SA Dogging Certification.	10
15.	Holds OH&SA Crane Certification:	
	Tower Cranes	20
	Portal Boom Cranes	20
	Bridge and Gantry Cranes	15
	Non Slewing Mobile Cranes	15
	Slewing Mobile Cranes (up to 100 tonne)	20
16.	Holds OH&SA Forklift Truck Certification.	15
17.	Holds OH&SA Rigger Basic Certification.	20
18.	Holds OH&SA Scaffolder Basic Certification.	20
19.	Holds OH&SA Order Picking Forklift Trucks Certification.	15
20.	Carries out conventional spraying including:	15
	setting up equipment and plant	
21.	Carries out wall papering including:	15
	preparation and cutting	
	application	
22.	Carries out wall and floor tiling as required to Specification and procedure.	20

Level 6 (continued)

23.	Applies basic electric welding skill including:	15
	tack welding course	
	setting up and tack welding	
	includes stud welding and setting of equipment.	
24.	Operates tool store including:	20
	Bar Code System	
	Material issue and stock balance	
	Material requisition	
25.	Sets and operates machinery including any three items listed below:	15
	Lathe	
	Milling machine	
	Planer	
	Drilling machine	
26.	Operates computer terminals for all material handling within the Facility such as System 36.	20
27.	Be able to interpret material requirements from drawings, job cards and Material Issue Voucher.	10
28.	Ability to maintain accurate records of material and stock balance.	10
29.	Sea Trials:	
	Completes training and participates in Sea Trials	10
	Holds Coxswain Certification.	15

SHIPBUILDER - TRAINING MATRIX

Level 5

Non Trades Specialist Skills

1. About eighteen to twenty-four months' shipbuilding experience and applies all skills for which the employee is qualified to carry out the Company's business on or off site.
2. Applies skills from the Training Matrix with a value of 240 points. Eighty points Level 5, 80 points Level 6 and 80 points Level 7.
3. Trains employees as required.
4. Completes ship familiarisation training programme. 10
5. Commensurate with holding: 80
 - . OH&SA Rigger - Intermediate Certification
 - . OH&SA Scaffolder - Intermediate Certification
 and is OH&SA certified to operate:
 - . Tower Cranes
 - . Portal Boom Cranes
 is able to plan, calculate and organise complex lifts up to 200 tonne.
6. Calibrates painting, equipment instrumentation after attending appropriate course. 20
7. Carries out Quality Assurance inspection after attending coating and inspection course. 20
8. Applies metal spraying skills to site requirements. 20
9. Carry out airless spraying. 15
10. Interprets "Prometer" readings during painting operations. 15
11. Reads and interprets drawings relevant to the ANZAC Ship Project, i.e. structural, electrical, mechanical/outfit co-ordination. Twenty points per area, including general arrangements. 10

SHIPBUILDER - TRAINING MATRIX

Level 5

Trades Area

1. New employee with Australian Standard Framework (ASF) Level 3 qualification or equivalent (Trade Entry Level).
2. Completes probationary period of three months.
3. Completes induction.
4. Completes basic ship and facility terminology programme.
5. Utilises all skills held to carry out the Company's business on or off site as required.
6. Performs material handling functions in an acceptable and safe manner.
7. Employees using fabrication and welding skills must successfully complete pre-employment testing to one of the following weld procedures:
 - . SMAW ASP 104.902/2 and 902/7A 30
 - . SMAW ASP 104.902/3A and 902/7A 15
 - . SMAW ASP 104.929/2 30
 - . SMAW ASP 104.902/5 and 902/7A 10

Points gained will be included in Level 4 assessment.

Upon completion of the probationary period and after exercising/demonstrating competence in all areas listed, the employee shall receive a credit of 240 points.

SHIPBUILDER - TRAINING MATRIX

Level 4

Non Trades Team Leader

1. About forty-eight months' experience and applies skills from the Training Matrix with a value of 240 points. Eighty points from Level 4 and 160 points credited previously.

N.B.: Team Leaders in this category apply their skills to non Trades Levels 5 to 8.

2. Carries out the duties of a Team Leader including:

- . Co-ordinating work activities
- . Facilitating
- . Running meetings
- . Controlling activities of work teams
- . Providing training
- . Use of work instructions procedures and work steps, job cards.

The employee shall receive 80 points in this area after completing the prescribed training programme and utilising skills on the site.

SHIPBUILDER - TRAINING MATRIX

Level 4

Trade Plus Additional Skills

1. About six months' experience within the Shipyard Operations Group and applies skills from the Training Matrix with a value of 320 points. Eighty points from Level 4 and 240 points credited previously.
2. Performs inspections, routine maintenance and fabricates and repairs components as required.
3. Installs components including Hull Mechanical Electrical and Maintenance.
4. Trains Level 5 and below, employees as required.
5. Applies all skills for which the employee is qualified to carry out the Company's business on or off site.
6. Reads and interprets drawings relevant to ship project work for construction and/or repair including:

. Ship arrangement drawings	20
. Fabrication and ship structures	20
. Marine piping and isometric	20
. Mechanical	20
. Electrical	20
. Shipboard Installation and compartment co-ordination drawings	25

7. Fabricates decks and bulkheads to drawings and Specifications. 10
8. Performs manual gas flame cutting of steel plate to section and measurement lines. 10
9. Utilises cross trade skills to carry out tasks including:

. Lathes	5
. Milling machines	10
. Planer	10
. Guillotines	5
. Power Saw	5
10. Holds appropriate OH&SA certification for and utilises skills in:

. Dogging	10
. Cranes	15
. Forklift	10
. Rigging	20

Level 4 (continued)

10.	Continued	
	Scaffolding	20
	Other specific OH&SA skills as required.	
11.	Obtains and utilises Level 2 First Aid Ticket.	10
12.	Completes training module on ship structures from the Shipbuilding Technology Programme or passes competency test.	15
13.	Align shafts and equipment including use of all the instruments listed below:	20
	Dial Indicator	
	Micro alignment telescope and associated instrumentation	
	Laser equipment.	
14.	Uses Horizontal borer for complex boring operations including set up and run.	25
15.	Fabricates and installs	
	Wave guides	25
16.	Applies cable termination and installation skills as required.	10
17.	Measures and marks out compartments.	20
18.	Directs the distribution of temporary supplies to berths, slipway, dock and pier.	15
19.	Strips, repairs, assembles and tests equipment including:	
	Electrical appliances	20
	Yard equipment	20
	Welding machines	20
	Forklifts	20
20.	Cross-trained and qualified to Welding Procedure ASP 104.902/3A and ASP 104.902/7A.	

SHIPBUILDER - TRAINING MATRIX

Level 3

1.	Applies skills greater than Level 4.	
2.	About twelve months' experience within the Shipyard Operations Group and applies skills from the Training Matrix with a value of 400 points. Eighty points from Level 3 and 320 points credited previously.	
3.	Performs all tasks for which the employee is qualified to carry out the Company's business on or off site.	
4.	Applies skills in Hull Mechanical and Electrical areas.	
5.	Applies information from the relevant area of the ANZAC Ship Construction Manual.	
6.	Fabricates complex structures, including large foundations, masts, rudders, etcetera.	10
7.	Services thermal plant equipment.	10
8.	Installs on-board equipment and machinery, i.e.:	
	Stabilisers	10
	Main machinery	10
	Auxiliary machinery	10
	Switchboard and electrical equipment	10
	Rudders	10
	Shafting	10
9.	Correctly sets and operates site machinery including:	
	Fujicar roller	25
	N/C profile cutter	25
	Plate preparation line	26
	CNC Pipe benders	25
	"T" Drill flaring machine	20
	CNC Lathes	25
10.	Obtains Brazing qualifications for ANZAC Ship.	25
11.	As required, qualifies in the following Fillet Weld procedures:	
	GTAW ASP 104.929-932 series	10
	GMAW ASP 104.909 series	10
	GMAW ASP 104.932 series	10
	SMAW ASP 104.932 series	10

Level 3 (continued)

11.	Continued	
	Any approved additional material process/combination qualifications will receive 10 points.	
12.	Completes Welding QA test.	10
13.	Carries out complex maintenance procedures to yard equipment including:	
	Transporters	20
	Cranes	20
	UBF	20
	Plate line	20
14.	Completes ships test programme requirements for Test and Trails Stage 2.	25
15.	Completes hydraulic crimping type 2 training course.	25
16.	Applies and demonstrates computer skills.	10
17.	Installs and tests:	
	Communication equipment	25
	Computer systems	25
	Combat system equipment	25
	Ship switchboard and distribution system	25

SHIPBUILDER - TRAINING MATRIX

Level 2

Multi-skilled and leadership capability

1.	About twenty-four months' experience within the Shipyard Operations Group and applies skills from the Training Matrix with a value of 480 points. Eighty points from Level 2 and 400 points credited previously.	
2.	Fully interprets the relevant sections of the ANZAC Ship Construction training manual as it applies to their area of competence.	
3.	Fabricates and installs complex components and systems.	25
4.	Completes post trade courses and applies skills in:	
	Welding supervision (OH&SA No. 10 Certificate)	30
	Basic electronics	30
	Certificate Engineering Shipbuilding	30
	CNC	30
5.	Fully interprets ship's specification as it applies to their key area.	25
6.	Trouble-shoots and repairs complex items in:	15
	Hull	
	Mechanical	
	Electrical	
	Yard maintenance	
	e.g. Bow, Shaft alignment, electronic communication problems.	
7.	Completes high reliability soldering and crimping course.	15
8.	Develops procedures.	15
9.	Leads QPIP teams in problem solving and process improvement.	20
10.	Undertakes final inspection of systems to QC requirements.	20
11.	Plans work and co-ordinates natural work teams.	20
12.	Completes planning short course and applies skills.	15
13.	Completes trainer's course and applies skills.	15

Level 2 (continued)

14. As required, qualifies in the following Butt weld procedures:

. GTAW ASP 104.929-932	30
. SAW ASP 104.915	30
. GMAW ASP 104.909	30
. GMAW ASP 104.905	30

Any additional material process/combination qualification will receive 10 points.

SHIPBUILDER - TRAINING MATRIX

Level 1

Trades Team Leader

1. About forty-eight months' experience within the Shipyard Operations Group and applies skills from the Training Matrix with a value of 560 points. Eighty points from Level 2 and 480 points credited previously.

2. Carries out the duties of a Team Leader including: 80

- . Co-ordinating work activities
- . Facilitating
- . Running meetings
- . Controlling activities of work teams
- . Providing training
- . Use of work instructions procedures and work steps, job cards.

The employee shall receive 80 points in this area after completing the prescribed training programme and utilising skills on the site.

N.B. Team Leaders on this category are able to apply skills to all Levels, 8 to 1, but particularly so with reference from Levels 5 to 1.

3. Out-posted to the Engineering Group and carries out drafting and engineering duties, including: 80

- . Drawing layout and general drafting
- . Material take-offs
- . System schematics
- . Equipment list
- . Data take-off and entry into Engineering Data Base
- . Material procurement.

4. Out-posted to Quality Group and carries out Quality Assurance duties, including: 80

- . Work order inspection and sign off
- . Receipt inspection
- . Stage II quality acceptance inspections
- . Compartment inspections
- . Quality audits.

Level 1 (continued)

- | | | |
|----|--|----|
| 5. | Out-posted to Test & Trials Group and carries out duties including: | 80 |
| | <ul style="list-style-type: none">. System setting to work. Stage III and IV acceptance testing. Completion of test. Develops test procedures. | |
| 6. | Out-posted to the Planning Group and carries out planning and scheduling duties including: | 80 |
| | <ul style="list-style-type: none">. Material planning. Preparation of Work Schedules. Estimates for labour and resource - having completed appropriate training. | |

N.B. Duties listed above, items 2. to 6., would not be assigned as permanent duties.

Appendix 5

Sample Transcript of an Interview

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PROJECT: project, User Williamstown,

Interview
Wilma Stuart May 8th 1995

Question: Could you give some background to the culture of the dockyard prior to privatisation?*

The pick axe culture - in describing the transformation of Transfield from the Williamstown dockyard - the HR manager used graphic examples of how the Williamstown dockyard operated prior to 1988 - One employee currently at the dockyard has framed above his desk an ice-pick. Whilst this is an ornament now, its original purpose was one of protection in case anyone attacked him in the company during working hours. Equally cars being vandalised with acid was also not uncommon, as the conflict within the dockyard spilled out into the street. 3

The conflict emanated predominantly from trade union rivalry and inter-union disputes. The conflict rather than the ferocity of it is understandable when considering 23 unions were represented. It was also commonly known that most people would come to work with various types of protection.

Equally with a 23 union representation, and a closed shop demarcation was endemic power within the dockyard was vested as much in the shop-steward committee as management. This was further complicated by the operation of 30 awards operating simultaneously. 390 work classifications which covered a range of aspects of the job including 5 cents for going up a ladder and this increased with height. Whilst this is seen as reasonable compared to one classification for lost dogs, which gave employees paid time off to find their lost dog. In addition there was an allowance for employees involved in the Williamstown band to go to practices on full pay during worktime.

What were the consequences of these work patterns and practices?

The problems associated with such work practices were masked by the financial situation, which the HR manager describes as the 'hot line to Canberra'. When funds ran out a direct line to the defence ministry asking for more funds was dully acted upon. This meant that management never had to deal with the inefficiencies caused by such a culture of work.

The combination of these factors multiple unions/awards/demarcation were obvious factors in the low productivity of the yard. By the mid 1980s the yard was an annual loss maker and by 1985 this had reached \$18 million and lost time due to industrial disputes was running at 10% per annum. The government realised that something had to be done in terms of making the dockyard a going concern. The then Defence Minister, Kim Beazley has described the decision process undertaken by the Government as taken with great angst. The decision was to sell the dockyard to the private sector. But they new they had no alternative because the reforms initiated since the mid-1980s had failed.

In 1987 the dockyard was sold to AMEC a consortium made up of three companies - ICAL, EGLO and ASI. Amecom owned a 1/3 of ICAL and EGLO and subsequently bought them out and then bought out ASI who were also attempting to gain sole control of the dockyard. In 1988 the dockyard became Transfield Shipbuilding Pty Ltd, to incorporate into the whole of the Transfield organisation of which AMECON was a part, to identify it with the organisation as a whole and for customers to also see its background and position.

Can you describe the major changes associated with the move from Public to Private?

On acquiring the dockyard AMECON realised there would have to be a fundamental restructuring (not least of work practices) if the dockyard was to be a viable and going concern in the private sector.

In this context the management had the full support of the ACTU who realised that this was the last chance for the dockyard. In the subsequent negotiations with the ACTU the dockyard was able to negotiate fundamental changes not only to work practices and process at the dockyard but changes which were unique to Australian industry.

What were the key changes that took place at the dockyard?

The first aspect of the negotiations were that management acknowledged the role of unions within the dockyard but believed that 23 unions were far too many to accord a process of negotiations took place based on the issues of relevance to the dockyard. Through negotiations with the ACTU the amount of unions that the dockyard would acknowledge in the context of negotiating was in the end 3: 36

- AWU - FIMEE Amalgamated Union
- Automotive, Food, Metals and Engineering Union
- Communication, Electrical, Electronic, Energy, Information, Postal, Plumbing and Allied Services Union of Australia

Did you maintain the closed shop?

Closed shop for blue-collar employees was maintained. The blue-collar workforce was reduced from 1300 to 650, however this process was put in train whilst the dockyard was in the public sector, as the government was attempting to structure it for a potential sale and the prospects of dealing with mass redundancy was an obvious obstacle to a potential sale.

The process of reduction included early retirement, retrenchment packages and relocation to other parts of the public sector. This process substantially reduced the workforce to a size that we felt made the dockyard a going concern.

How did you go about recruiting a new workforce?

Recruitment was geared to program troughs. Therefore idle time was eliminated through this combined with the elimination of all demarcation. Any extra work or peak cycle work is contracted out as required. This is the complete opposite of the previous policies, which caused massive idle time.

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Have you eliminated all the workplace demarcations?
51

The only restriction are that the work to be undertaken is by a person who has the appropriate skill and is within the bounds of Occupational Health and Safety requirements.

What have the major procedural changes been at the dockyard?

Under public ownership the dockyard as well as dealing with 23 unions, operated under 30 awards, 390 classifications and a complex combination of leave allowances. This was to management an obvious burden to a fully competitive dockyard and in conjunction with the ACTU developed one of Australia's first enterprise agreement. However, the uniqueness of this agreement came more from the fact that it was developed and finalised without a workforce.

How do this happen?

The Shop-Steward at the dockyard had maintained a central role in the negotiation of work practices and agreements. The reduction of unions, awards and job classification allowing for a demarcation free workplace with no over award payments being negotiated by the ACTU was a critical blow to their power-base. The result of which was that during the process of negotiating the agreement the Shop-Stewards called for a walkout. In March, the union blackbanned the site after realising 20 would be excluded.

The representation of three decided by ACTU and enterprise agreement incorporation work related essential demarcation allowances, standardise leave and a single status workplace. 64

Incorporated into the agreement was the elimination of demarcation lines as a pre-requisite for the development of multi-skilling and competency based training programs.

Did you feel you achieved the key procedural changes?

We had achieved the restructuring of work principles and by inference work practices with the only setback being the fact that they no longer had a workforce. 74

75

As the HR manager put it, we had everything in place that we believed would make the dockyard competitive except we had no workers and a 100 million dollar investment, a 50 million dollar loan and 2 half built ships idle. To further exasperate the situation during the walkout several counts of vandalism had taken place to further inhibit a quick resumption when the matter was resolved.

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The first task for management was to put on the overalls and clean up the vandalism as best they could. The dockyard by this stage was being picked with the most vociferously being the storemen and packer union who had lost representation in the shake-up and whos members were required to be retrained to do a variety of jobs.

78

79

Out of 350 employees who walked only 39 eventually returned of which 2 left. Therefore Transfield had to recruit a new workforce to complete HMAS Melbourne and the Newcastle. The key factor for the site Shop-Stewards Committee was their total misreading of the situation. Because they had traditionally used their industrial strength to achieve their aims they did not see the fundamental change in focus of a federal labour government prepared to sell a loss making public sector industry, a private consortium making ships for profit, and the ACTUs willingness to negotiate an enterprise agreement as they saw the big picture that this was the dockyards last chance.

The Skills Shortage

Obviously the replacement of certain trades was not a major problem however, those skill specific to shipbuilding and the additional skills required to do standard jobs required in ships was certainly absent.

*** need more detail on how workforce was skilled up here ***

(see IR manager)

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How did you go about recruiting and selecting a new workforce?

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As part of the selection panel recruiting the new workforce, one of the central themes in this process was the potential employees response to multi-skilling and the possibility of doing jobs above and below their station in terms of skill. This also must be seen in the context of the organisation also putting into process a skills development and training program which runs at 6% of budget, compared to the Training Guarantee Act which expected 3% investment by companies. This aspect of the job was central to 2 of the 39 returning existing employees not continuing with their employment

Can you quantify the changes associated with the new work patterns and practices?

Productivity Increases (600 - 700%)

A key aspect of the rejuvenation of the dockyard has been the above increase in productivity. To quote such a for nominal turnaround, the HR manager identified work practices and staff levels as the variables. This was illustrated by the blasting and painting example because the ships are now built in modules and the work is geared to troughs work in the areas for example can be isolated from other operations can be undertaken when required without impinging on other work. This means that this process has been reduced from 28 weeks to 4 weeks and those undertaking the work are taken from areas where work is not at capacity and by sub-contractors. Again we see this as sensible work practices and good management practices.

How do you integrate the Sub-Contracting work?

Typically on site there are 400 contracted employees to support the core workforce. A key issue here is quality/standards and how they are achieved/maintained. This is achieved through a certification process of certain government standards which need to be achieved. Typically a sub-contractor can be a T2-T5 depending on how many processes they go back to before they reach us. All sub-contractors, no matter how many stages back must be accredited

What impact have the changes had on Trade Union membership?

In the Enterprise Agreement management agreed to a closed shop for all blue-collar workers and any employees remaining from unions no longer recognised by the management through the EB agreement had the choice of remaining with their current union or joining one of the recognised unions. These unions developed special sections to accommodate these non-traditional members, eg. Draughtsmen

Unions cover 650 workers on the site.

What about Salaried Employees

For management and other salaried staff they operate under individual contracts. These contracts are negotiated individually, however they are not individual contracts in the context of the Kennet Government derisory contracts. The individual contracts are based on federal awards provisions - in that leave etc is standardised the only aspect of the contract which is negotiated is that of pay. The key aspect for this is that management want to build an incentive or productivity base into their salaried staffs package, the pay - performance is based upon staff appraisal with direct supervisor and grandfather if any disagreements occur.

What is your key market?

Transfield main defence shipbuilding projects s the ANZAC Frigates - designed by Bloom & Voss, Germany. This is designed to be an off the shelf design which is further differentiated by being available at 30 and 90 metre lengths and with appropriate variations in optional extras.

How important has the development of quality been in the dockyard

We have developed the QPIP - Quality production improvement program

This was linked to the culture change

Whilst the dockyard had gone under fundamental changes the work culture (whilst not as hostile) there was still an overhang of the previous culture. In terms of management/employee relations managements agenda was to eliminate the degree of mistrust, and a lack of personal motivation. To ensure that the workforce were aware that the old public sector safety net was no longer available, and link to this the understanding that cost and schedule were not un-important and out of the employees control. The hostility to the quality issue initially related to the name it quickly got QPIP - Quick piss in the pocket

What was the main focus of this New Culture

The new culture that management wished to engender was one which centred around the following core values:

Increased trust between management and employees; a motivated and committed workforce; remuneration according to skill levels; a cost driven, commercial, competitive culture where employees share responsibility and control.

Diagram given to highlight this.

Could you tell me about the QPIP Program?

The Quality Productivity Improvement Process (QPPI)

To attempt to develop this new culture management developed the QPIP program - The objectives of the QPIP program see Diagram.

The first task undertaken in the QPIP was to identify customer focus, the sections were broken up into small work-groups with a HR manager and initially asked to identify their internal customers. This question was met initially with a combined wall of silence and confusion. The workforce had never seen themselves in this context before and were unsure of the actual process. When this became established, the next major point of difficulty was the question of What to do with it. Again the work had been so departmentalised and fragmented that little knowledge of the process even before and after their own point was hazy. The following question of how do they know when they get superior work from you?, was met with even more of a blank. As procedures under the old system indicate that when work was substandard a paper chase would ensue and re-work would eventually feed back into the system. There were no direct mechanisms for feedback assessment of consultation between internal customers and suppliers.

Equally the questions of How do you know how you are doing? was met with equal difficulty because of the lack of feedback, review and consultation undertaken in the previous environment.

The final question What can you do to make it better? was met with stony silence as this meant being critical of people/management as well as systems. This was the hardest barrier to breakdown to convince employees that there would be no retaliation or recrimination in telling the truth as they saw it.

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Meeting concluded because of pressing work commitments

Published Work Relevant to this Thesis

Managing flexible patterns of work for competitive advantage. In Brewster, C., Dowling, P.J., Grobler, P., Holland, P. and Warnich, S. (2000) Contemporary Issues in Human Resource Management: Gaining a Competitive Advantage, pp. 81-106. Oxford University Press: Cape Town, South Africa.

Integrating total quality management and human resource management. In Brewster, C., Dowling, P.J., Grobler, P., Holland, P. and Warnich, S. (2000) Contemporary Issues in Human Resource Management: Gaining a Competitive Advantage, pp.107-133. Oxford University Press: Cape Town, South Africa

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